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American Railroad Journal.

PUBLISHED BY J. H. SCHULTZ & Co., 136 NASSAU ST.

Saturday, August 9, 1851.

Illinois Central Railroad.

We have received an ably written pamphlet by D. A. Neal, Esq., setting forth the position and prospects of the Illinois Central railroad, an enterprise that is just now attracting the attention of business men and capitalists. The right of way through the public lands and alternate sections of those lands, were granted by act of Congress, approved September, 1850, to the State of Illinois, for the purpose of aiding the construction of "a railroad from the southern terminus of the Illinois and Michigan canal to a point at or near the junction of the Ohio and Mississippi rivers, with a branch of the same to Chicago, on Lake Michigan, and another via the town of Galena to Dubuque in the State of Iowa." By an act of the Legislature of the State of Illinois, passed the present year, Robert Schuyler, George Griswold, Gouveneur Morris, Franklin Haven, David A. Neal, Robert Rantoul, Jr., Jonathan Sturgis, George W. Ludlow, John F. Sanford, Henry Grinnell, Wm. H. Aspinwall, Leroy Wiley, and Joseph W. Alsop, and such persons as shall hereafter become stockholders, were created a body politic and corporate, under the name of the Illinois Central Railroad Company, with all necessary powers and privileges for constructing and maintaining the railroad and branches, contemplated in the act of Congress aforesaid; and for this purpose the right of way and all the lands that may have been selected along the line of said road and branches in the State, under the grant in said act, together with a right of way over and through lands belonging to the State, and all the rights and materials heretofore acquired by the State for the same object, are ceded and granted to said corporation, on condition that such road shall be built in four, and said branches in six years, and that when built and in operation, seven per cent. of the gross income shall be paid to the State, in lieu of all taxes levied for State purposes. The lands thus granted are to be placed in the hands of trustees, three-fourths for the security of any bonds issued by the company, and one-fourth to meet any deficiency from other sources, for the payment of interest, or contingencies. The capital stock is fixed at one million of dollars, which may be increased at any time, to an amount not exceeding the entire expenditure on account of the road.

The company has been organised, the capital stock subscribed, and 20 per cent. of it paid in; and engineers are now employed in selecting a route for the road and branches, the total length of which is assumed to be 670 miles.

It is proposed to meet the cost of construction by the issue of bonds, payable in 1875, bearing interest not exceeding 7 per cent. The security for the principal will be—1st, the road itself; and 2d, two million acres of the donated lands. The security for the interest will be—1st, the capital stock; 2d, the income of the road; 3d, 250,000 acres of the land specially appropriated.

The lands will be valual at prices that will more than cover any possible amount required for construction, but which, it is believed, will be fully realised before the period of the maturity of the bonds. These bonds may at any time be surrendered, and any land on sale claimed in lieu of them at the appraisement. The rates at which it is expected these lands can be sold, will not vary much from the following average:

Acres.			
400,000	ordinary agricultural lands	$6,	$2,400,000
1,200,000	good " "	10,	12,000,000
300,000	superior " "	15,	4,500,000
100,000	town sites, mineral lands, etc.	20,	2,500,000
2,000,000			$21,400,000

The pamphlet then goes on to show that the peculiar formation of this tract of country, makes it perhaps more than any other in the world, *the place* for the location of railroads. Its topographical character is extremely favorable to their construction. On its vast praries the levels are already formed. The embankments and ditches may be made by turning the sods from the sides to the centre. There are but few streams to cross, no rocks to blast, no mountains to perforate, and no valuable estates through which to purchase, at enormous rates, the right of way. The difficulties are all of an inferior grade.

Having shown the cheapness of the road, we are presented with an estimate of the probable business which it would command, as follows:

1,200 tons outward freight 312½ days, is 375,000 tons, at $4	$1,500,000
300 tons inward freight 312½ days, is 93,750 tons, at $5	468,750
200 tons coal to Cairo, 313 days, is 62,600 tons, at $1	62,600
200 tons coal to Chicago, 313 days, is 62,609 tons at $2	125,200
200 tons lumber from Chicago, 313 days, 62,600 tons at $2	125,200
64 tons through freight, 313 days, is 20,000 tons, at $10	200,000
26,000 through passengers, 400 miles each, 10,400,000 miles, at 3 cents	312,000
60,000 local passengers, 300 miles each, 18,000,000 miles, at 3 cents	540,000
Mail, $100 per mile	66,000
Expresses, parcels and miscellaneous	38,250
Total	$3,438,000
State tax, 7 per cent. say	238,000
Balance	$3,200,000

COST OF OPERATING.

73,280,000 tons carried one mile at 1¼ cents per ton per mile.	$916,000	
28,400,000 passengers carried one mile at 1 cent per mile..	284,000	
		1,200,000
Being 60 cents per mile run by trains—net income		$2,000,000

Being seven per cent, on between twenty-eight and twenty-nine millions of dollars.

The above is Mr. Neal's estimate of the business of the road so soon as it shall have been put in operation. After, however, all the great lines of thoroughfare shall have been completed which will directly or indirectly affect the business of this; after the connection shall have been made perfect with New York, Boston, Philadelphia, Baltimore, Charleston, New Orleans, Mobile, etc; and after the inexhaustible resources of the State of Illinois shall have begun to be fairly developed, Mr. Neal indulges in another estimate of what the business of the road may *then* be expected to amount to, as follows:

	Gross income.
150,000 tons coal carried 75 miles each.	$225,000
150,000 tons lumber, " 100 "	300,000
1,000,000 tons produce, " 100 "	4,000,000
125,000 tons merchandise back "	625,000
60,000 local passengers, 300 "	540,000
26,000 through " 400 "	312,000
20,000 tons freight, 400 "	200,000
	6,202,000
Mails, etc	98,000
Total	$6,300,000
Expenses	2,580,000

Leaving a net income of $3,720,000, less seven per cent. of gross income to State, $440,000—leaves $2,280,000, or an interest of 7 per cent on nearly $47,000,000.

Before this amount of business could be done over the road, however, the company will have to incur the additional expense of building another track, provide further depot accommodations, and increase the stock which will be put upon the road at its completion.

Mr. Neal estimates the whole cost of the road, single track, at $15,000,000; and to do the business of the first of the above estimates would require 75 engines, 90 passenger cars, 960 freight cars and 640 coal cars.

We give an extract from the pamphlet:

The road to be built is restricted only to within 17 miles each of a straight line from the city of Cairo to the southern terminus of the Illinois canal, which line is nearly coincident with the third principal meridian, thence a branch by any convenient route to Galena. From a point in about the latitude of 39.30 north latitude, will diverge the branch to be built to Chicago. The main line to be completed in four years, the branches in six. No taxes to be levied until the road is completed; then in lieu of all other taxes the company are to pay seven per cent. of the gross earnings of the road, as already stated. The donated lands consist of every alternate section designated by even numbers, for six sections in width on each side of the road as it may be located, or if any of these have been sold, than an equal quantity may be taken from contiguous tiers of sections anywhere within 15 miles of the line.

Under this grant, the road will be located through the most fertile prairies, the most valuable forests, and the richest mineral lands in the State; but these have been neglected by settlers in consequence of the utter impossibility of getting their productions to market. Until the Illinois Central railroad company shall have selected their lands, the books of the General Land office in Washington are closed against entries in this region, and when opened, the price is to be double that of the other lands. The company are therefore fully protected. They have organised under their charter, all the deeds and necessary documents have been executed by the Governor of the State, the trustees and its own officers. The whole stock has been taken and 20 per cent. paid in, in cash, and the same deposited with the State Treasurer of Illinois, to by returned on completion of 50 miles of the road. Robert Schuyler, Esq., of New York, a gentleman more conversant with and more largely interested in railroads than any other person on the western continent, has been chosen President, and Morris Ketchum, Esq., of the very wealthy and well known house of Rogers, Ketchum & Bement, Treasurer of the Association. R. B. Mason, Esq., of the New York and New Haven railroad, has been appointed Chief, and he has engaged seven resident and a large corps of assistant engineers, who have proceeded to Illinois to locate the road and select the donated lands. The system devised for procuring the means of building this road by the *sale* ot bonds, and for the *payment* of them *when* or *before* they become due, is unique in its character and provisions. It is believed to afford not simply entire security for the current interest and redemption at maturity, but a strong probability of a great advance in value, in consequence of the peculiar conditions annexed to the sale of the property which forms a branch of the collateral security embraced in the plan.

Ancient and Modern Metals.

The ancients were acquainted with but seven metals; we therefore enumerate those at present known in addition, and by whom discovered:—

1.	Gold.		
2.	Silver.		
3.	Iron.		
4.	Copper.		
5.	Mercury.		
6.	Lead.		
7.	Tin.		
8.	Antimony	Basil Valentine	1490
9.	Bismuth	Agricola	1530
10.	Zinc	Paracelsus	1530
11.	Arsenic	Brandt	1733
12.	Cobalt		
13.	Platinum	Wood	1741
14.	Nickel	Cronstedt	1751
15.	Manganese	Gahn	1774
16.	Tungsten	D'Elhugart	1781
17.	Tellurium	Muller	1782
18.	Molybdenum.	Hjelm	1782
19.	Uranium	Klaproth	1789
20.	Titanium	Gregor	1791
21.	Chromium	Vauquelin	1797
22.	Columbium	Hatchett	1802
23.	Palladium	Wollaston	1803
24.	Rhodium		
25.	Iridum	Tennant	1803
26.	Osmium		
27.	Cerium	Hisinger	1804
28.	Potassium	Davy	1807
29.	Sodium		
30.	Barium		
31.	Strontium		
32.	Calcium		
33.	Cadmium	Stromeyer	1818
34.	Lithium	Arfwedson	1818
35.	Silisium	Berzelius	1824
36.	Zirconium		
37.	Aluminum	Wohler	1828
38.	Glucinum		
39.	Yttrium		
40.	Thorium	Berzelius	1829
41.	Magnesium	Bussy	1829
42.	Vanadium	Sefstrom	1830
43.	Didymium	Mosander	1842
44.	Lanthanium		
45.	Erbium	Mosander	1842
46.	Terbium		
47.	Pelopium	H. Rose	1845
48.	Niobum		
49.	Ruthenium	Claus	1845
50.	Norium	Svanberg	1845

Elements of the Electric Telegraph.

An electric telegraph consists essentially of three things;—first, a voltaic battery, or other apparatus, to evolve, when required, electricity; secondly, an arrangement of metallic wires, or other good conductors, to convey the electricity to the distant places with which the telegraph communication is to be carried on, and to bring it back to the machine from which it set off; thirdly, the application of the electricity so conveyed to produce at the distant station some striking phenomenon, which, according to a preconcerted arrangement, shall represent a letter of the alphabet, a numeral, a word, a sentence, a paragraph, or the like. A source or fountain of electricity, conductors to carry it, and a dial plate, on which it shall cause an index to exhibit signals, are thus the essential elements of an electric telegraph.

Mile of the Different Nations.

	English yards.		English yards.
Arabian mile	2,148	Irish mile	3,038
Bohemian mile	10,137	Italian mile	2,025
Brabant mile	6,082	Lithunian mile	9,784
Burgundy mile	6,183	Oldenburgh mile	10,820
Chinese illis	628	Poland mile short	6,095
Danish mile	8,244	Poland mile long.	8,101
English mile	1,760	Portuguese leguos	6,750
English mile Geog	2,925	Prussian mile	8,468
Flemish mile	6,869	Roman mile ancient	1,613
French art ll league's	4,860	Roman mile modern	2,036
French Marine do	6,075	Russian versts	1,167
French legal leagues of 2,000 toises	4,263	Saxon mile	9,905
German mls Geog	8,100	Scotch mile	1,984
German m:les long	10,126	Silesian mile	7,083
German mile short	6,859	Spanish leguas legal	4,630
Hamburg mile	8,244	Spanish leg. com.	7,416
Hanover mile	11,559	Suatian mile	10,125
Hesse mile	10,547	Swedish mile	11,794
Dutch mile	6,395	Swiss mile	9,156
Hungarian mile	9,112	Turkey berries	1,821
		Westphalian mile	12,155

The Flora of the Coal Formation.

No fewer than three hundred species of plants belonging to the coal formation of Great Britain have been enumerated up to the present time; but although this is the whole number hitherto discovered, it is impossible to say whether it approaches the total amount of the species of even a single period. It need hardly be remarked that a collection, formed of the fragments found in our latest deposits, would not afford the slightest indication of the nature of the general mass of the then existing vegetable world; and as little are these remains to be regarded as those of the more abundant kinds of plants, or even as those of the plants which might have been fancied to be best adapted for fossilization. That specimens of species at present unknown may yet be discovered, in a condition which will enable the botanist to pronounce positively on their character, cannot be doubted; but that they exist in less number than might otherwise be anticipated from the vast extent of a coal field may be deduced from the great uniformity of species among the fossil plan which have already been found in the coal formation.

That the vegetation of the coal period, whether we consider it as confined to the range of the coal-field or not, was extremely luxuriant, cannot be denied; the immense masses of the coal, the great predominance of forms perceptible in every coal-field, and the great size to which many of the soft-celled plants have attained, clearly show this. A luxuriant vegetation, however, is not a proof of a varied one, for many of our forests at the present day, even large tracts of forests within the tropics, are formed of a few, though abundant species; and in this manner the coal forests might have consisted of sigillarias and lepidodendrons, intermixed with a few ferns, for a small number of the latter, if they were as Proteus-like as some of their relatives of our age, would suffice to include all the known species of the fossil flora. The predominance of ferns over flowering plants is common to many of the tropical islands, and is not limited to the smaller ones, such as St. Helena and the Society Islands. It is also observed in extra-tropical islands, as in New Zealand, where thirty kinds of ferns have been gathered in the space of a few acres, giving the vegetation (which, beyond these, scarcely exhibited a dozen of flowering plants and trees) a very luxuriant appearance. A similar tract in the neighborhood of Sydney, in about the same latitude, had 100 species of flowering plants, and only two or three ferns.

In the modern period, and more particularly in temperate latitudes, a flora, marked by a predominance of ferns, is almost invariably poor in species of this or other orders. Where one species extends over a large space, like the fly-fern (*Pteris aquilina*) in many parts of England, or the edible fern in Van Diemen's Land, it generally occupies the whole surface of the ground; for, on the one hand,

it obstructs the growth of the larger sorts of plants, and, on the other, it chokes the undergrowth of the smaller species of fern. A luxuriant vegetation of many kinds of fern, extending over several degrees of latitude and longitude, indicates, in temperate regions, a uniformity of temperature, and a poverty of flowering plants. A comparison of the vegetation of New Zealand and Van Diemen's Land will render this clear. The latter, an island scarcely 200 miles in length, possesses four times the number of species of plants found in New Zealand, which is 900 miles long. On the other hand, the latter has four times as many species of ferns, which are so equally distributed all over the island, that those which are found at the south end also prevail at the north.

The West India and South Sea Islands also present a flora strikingly rich in ferns, and in both cases we find numerous species spread over an immense extent of surface—namely, from the Leeward Islands to Mexico, and from New Zealand to the Society and Sandwich Islands. If we take, on the other hand, the Campos of Brazil, the sandy plains of South Africa, we find there, barren as they might at first sight appear, many kinds of flowering plants but not ferns. The predominance of ferns in the coal period has long been urged as proof that the climate was then mild, agreeable, and moist; but it has never yet been brought forward as showing the small number of other plants, and the general poverty which characterized the flora of the period. If the present laws of vegetation applied to the time when the fossils bloomed, we must conclude, from the prevalence of the ferns over a great extent of surface, and also of certain kinds of *pecopteris* (related to our *pteris*), and from the striking singularity of the English fossils to those of North America, that the flora of the coal period was deficient in variety.

We must not, however, conclude from the predominance of an order, which, with regard to construction, stands low in the vegetable system, that the vegetation of which it formed a part was in a less advanced state of development than those of succeeding periods. We know too little of the structure of the ferns of that age to be able to decide whether they were more or less perfect than their relatives of the present period, while as regards the *lycopodiaceæ*, we may safely affirm that in form and bulk, as well as complication of structure, they exceeded all existing plants of that order.

Liability of Railroads.

The Supreme Court of Michigan has decided that railroad companies are not liable for stock killed or injured by the cars running over them. In a recent case decided, Chief Justice Pratt, says:

"The running of that train was a lawful act, and within their chartered rights, it was upon their own railroad, of which they had, by the express terms of their act of incorporation, the entire and exclusive right of possession and control. No third person had any right to interfere, or to arrest the passage of the train, or, by any means impede its progress. The act, then, of running the cars being lawful, the defendants cannot be held liable for any accidental injury, which may have occurred, unless the lawful right of running train was exercised without a proper degree of care and precaution, or in an unreasonable, or unlawful manner. This is a principle of law well settled, neither new or anomalous. It is as old as any other principle of the common law, and alike applicable to every other kind of lawful business.

* * * * * * * * * *

It often happens that no precaution, care or skill can prevent a locomotive at the head of a train of cars, running with the accustomed speed, from coming in collision with some domestic animal wrongfully on the road, and which the owner has negligently suffered to go at large unrestrained; the engineer conducting the train, not being able in consequence of some curve in the road, the darkness of the night, or some other unavoidable cause, to discover the animal in time to stop the locomotive, and thus prevent the collision. Under such circumstances, the defendants could not be held liable by any known principle of law, and if they could be, it would be unreasonable and manifestly unjust. They are required under heavy penalties to run the cars, and expeditiously to transport persons and property, &c.; and shall they, by construction based upon nothing better than mere hypothesis, be compelled to assume the guardianship of all the stray cattle, horses, and swine, usually found strolling along on the track of their railroad? Most certainly not. The owners are the only persons to look after them, and if they do not, it is but just that they alone should suffer the consequences of their own negligence and wrongful act,—of their own want of care, in the protection and preservation of their own property.

Southern and Western Railroad Convention.

We give below the proceedings of the committee appointed to call a Southern Railroad Convention at New Orleans on the first Monday of January next:

Under the resolutions annexed, inviting the call of a Southern and Western Railroad Convention, to be held in New Orleans, on the first Monday in January, 1852, I appoint the following named gentlemen a Special Committee:

GLENDY BURKE, Esq., Chairman.
Hon. A. D. CROSSMAN, Mayor of N. O.
Hon. AKEX. MOUTON.
J. D. B. DEBOW, Esq.
Col. C. S. TARPLEY, of Mississippi.

MAUNSEL WHITE, Pres't R.R. Con.

"Whereas, There are evidences throughout the Southern States of an awakening spirit of enterprise in the construction of railroads; and whereas, New Orleans, from her position and connections, is deeply interested in the promotion of these roads, and their concentration upon points which shall intersect with the roads now in projection from her midst, it is

"Resolved, That a Committee of Five be appointed by the President of this Convention, whose duty it shall be to prepare an address to the people of the Southern and Western States, setting out with all the facts and statistics they can gather, the various railroad projections in which these States have a direct and immediate interest, and the hearty co-operation which New Orleans and Louisiana are prepared to extend to them all; and inviting the people of these States to meet us in convention in the city of New Orleans, on the first Monday of January next, in order to an exchange of views and opinions, and if possible, a concentration and unity of effort in the extension of our railroad system.

"Resolved, That the Committee have authority during the ensuing summer and fall, to represent the views of New Orleans in these matters, in any of the States it may be in their power to visit, and that the agency of the press in behalf of the Convention be respectfully solicited.

"Resolved, That the said Committee be requested to correspond with the authorities of Texas, for the purpose of inviting that State to direct her public works so as to meet the extension of the New Orleans, Opelousas, and Attakapas Railroad."

—

New Orleans, July 15, 1851.

Fellow Citizens of the Southern and Western States:

Acting under the above appointment, the undersigned cannot refrain from expressing their satisfaction in being made the instruments of carrying out the wishes of the people of New Orleans, and of the late Railroad Convention, in inviting you to unite with us in promotion of the great purposes of railroad improvements in the Southern and Western States.

The time has arrived, in the progress of this active and busy age, when the South and the West should be aroused to a concentrated and vigorous effort, for the increase of their facilities of intercourse, and for the consequent development of their industry and enterprize to which it will lead, and their advancement in moral and physical power.

In particuler, we invite the people of Texas, Mississippi, Alabama, Arkansas, Tennessee, Kentucky, Missouri, Indiana, Illinois, and Ohio, to send their delegates to unite with the people of Louisiana and New Orleans, to deliberate upon, and concert such measures as will be likely to influence the construction of a system of railroads, connecting the Gulf State with those of the West and the North-west, and radiating throughout all the interior. We also invite delegations from others of the Southern States, in order more fully to understand the systems of works projected or being carried out by them, and to co-operate in the construction of any which may have an interest joint and common to us all.

The Committee have fully set out, in their annexed address, accompanied by a map, the general subjects to which the attention of the Convention will be invited.

The first Monday in January will be an agreeable and pleasant season to visit New Orleans, and her citizens tender in advance the hospitalities of the city to all who may appear from any quarter as representatives to the Convention.

GLENDY BURKE,
A. D. CROSSMAN,
ALEX. MOUTON,
J. D. B. DEBOW,
} Louisiana.
C. S. TARPLEY, Mississippi.

Lake Superior Mining Intelligence.

We copy from the Lake Superior Journal the following statement of the recent arrival of copper at the Sault:—

June 21.—Per steamer Napoleon, 78 tons of copper from the Cliff mine, 24 1-2 tons of bloom iron from the works of Messrs. Eaton & Co., Carp river, and nine tons of copper from the North American mine.

June 27.—Per Monticello, 53 tons of copper from the Cliff Mine.

Per schr. Fur Trader four tons from the Minesota Mine.

July 1.—Per Manhattan, ten and a half tons copper from Minesota mine, and two tons from the Peninsula mine, the first shipment from this mine.

July 5.—Per Napoleon, 42 tons of blooms from Messrs. Eaton & Co., and 122 tons blooms from Marquette Iron Company.

Per schr. Algonquin ten tons copper from the Cliff mine.

July 6.—Per Manhattan, 15 tons copper from the Cliff mine.

July 11.—Per Manhattan, 33 1-2 tons from the Cliff mine.

July 10.—Per Napoleon 27 1-2 tons blooms from the Jackson Company.

The following is the report of the sale of Mining Stock at the Copper Stock Exchange Office, Eagle Harbor, Michigan July 12, 1851:

Name of Company.	*Asked.*	*Offered.*	*Sold.*
Copper Falls.....			$40 00
Pittsburgh & Boston, (Cliff Mine).....		$128 00	
North American.....	$35 00	33 00	
Minesota	180 00	175 00	
North West.....	35 00	34 00	
North Western.....	15 00	12 50	
Phenix.....			8 00
Ridge			8 50
Adventure		8 50	
Iron City.....	6 50	5 50	
Forest.....	8 00	7 00	
Cape.....		3 00	
Farm.....	6 00	5 00	
Algomah			2 62½
Toltec.....		3 50	
Medora, (Agate Harbor).....	3 00	2 00	
Bluff.....		1 00	
Astec	8 00	7 00	
Ohio	6 50	6 00	
Eureka.....		3 00	
Hungarian.....	2 00	1 50	
Ripley.....	3 00	2 00	
Douglass Houghton..	7 50	6 50	
Winthrop.....	3 00	2 00	
Dana.....	3 00	2 00	
Lac la Belle.....	2 00	1 50	
Forsyth .....,			3 00

JOS. THACHER,
Sec'y M. I. Association.

From the Chemical Gazette.

On the Spheroidal State of Bodies.

BY E. N. HORSFORD,

Rumford Prof. in Harvard University, Cambridge.

From the early observations of Leidenfrost, and the later extended researches of Boutigny, upon the so-called spheroidal state of bodies, much attention has been directed to the interesting phenomena considered under this name, and to the speculation, that a new law, superseding the ordinary laws of heat, was here illustrated.

It will be the object of this communication to show that these phenomena are not rare, and that they require no new law for their explanation.

In the experiment of dropping water upon a hot polished metallic surface, as into a hot platinum crucible, we have three bodies concerned in the phenomenon that follows, viz: the supporting surface, the water and the layer of vapor interposed between them. The water rests upon a cushion of steam, continuously evolved by heat from the water, and assumes rounded margins as a result of the gravity of its particles toward its own centre. Its condition approximates to that of a liquid entirely surrounded by a uniformly-elastic medium, as for example, a drop of molten lead in air, and permits a proportionate approximation to the spherical form.

It is essential only that there be two bodies, one of them being fluid, between which affinity is wanting.

Corresponding with water in the ordinary experiment, called by the name of Leidenfrost, ether, alcohol, turpentine, a great variety of essential oils, and many other liquid bodies may be employed.—The conditions are the same. The liquid evolves a vapor, which, constantly issuing, prevents contact with the supporting surface. Here are three bodies and a high temperature.

Ether and oil dropped on water assume the spheroidal state. They have no affinity for the water. Here but two bodies and no heat are required.—Quicksilver poured upon glass assumes the spheroidal state. It has no affinity for the glass. Here but two bodies are concerned. Water dropped upon glass strewn with charcoal dust or fine powder, like pollen, takes on the spheroidal state.—Potassium and sodium thrown upon water assume this state. In the decomposition of the water producing potash, hydrogen is evolved; and with the heat arising from this union, and that of the potash with water forming hydrate of potash, water is vaporized, which with the hydrogen keeps the floating sphere and water apart. The dew-drop presents a spheroidal, but little differing from the true spheroidic state. It rests in most cases upon the hairs or down with which leaves are covered, and is not in contact with the leaves or twiggs.

The bead, as it is called, which appears at the surface of some liquids when violently shaken, and of which we have a familiar example on the water around the prow of an advancing sail-boat, is an instance of the spheroidal state of great interest.—What prevents the prompt reunion of the bead with the mass is not so obvious.

There is a fact in the history of the barometer which merits attention, and which may have influence in explaining this phenomenon. When pure mercury has been introduced into a barometric tube, and thereafter boiled, so as to expel all the air, upon erecting the tube in the cistern, the top of the column presents a certain curve, the meniscus, the character of which is dependent on the composition of the glass and diameter of the tube. If now a bubble of air be introduced, and then removed by carefully causing the mercury to sweep up and down the length of the tube, upon erecting the barometer the mercury will stand at the same elevation as before, but the meniscus will be less convex. Here, as in the case of the bead, it may be conceived that the mercury and water have condensed an infinitely thin layer of air upon their surfaces, which provide for the phenomena of the spheroidal state in the latter instance, and which modify the affinity of the mercury for the glass in the former.*

* The condensation of gases upon the surface of solids is a familar fact, of which the ignition of a jet of hydrogen by platinum sponges is a well-known illustration.

Of this class of facts, to none has more interest attached than to the recent experiments of Boutigny with molten metals. To him are we indebted for the first scientific consideration of this subject, although it appears that jugglers performed the feat of washing the hands in molten lead many years ago. Eleven years ago the author witnessed an explosion from the contact of molten slag with water, which expended most of its force upon the face and breast of a workman near. The shock prostrated and bruised, but did not burn him.

One form of the experiment is given in the adjustment of the wick of a burning spirit lamp with the fingers, which is every day practised by chemists.

In the experiment of passing the hand into molten iron, which has been repeatedly performed by the author without discomfort, it is necessary only, as has been noticed by Boutigny and others, that the surface of the skin be wet, or covered with some body like powdered resin, which upon the application of heat will readily vaporize. That the experiment may be safely performed, any one may satisfy himself by passing through the molten mass any highly-combustible substance previously moistened, as for example a stick of sealing-wax. When the hand previously moistened, is passed into the liquid metal, the water is vaporized, interposing between the metal and the skin a sheath of vapor. In its conversion into vapor, the water absorbs heat, and this still further protects the skin. It was thus in the case of the workman alluded to above. His face was streaming with perspiration, and the molten slag came in contact, not with the skin, but with the layer of vapor which rose upon its surface as the heated mass came near.

The explanation of Berzelius, offered some years since, and confirmed by all the experiments, so far as I know, that have been performed, is the following:—

In the Leidenfrost experiment, a layer of vapor continuously evolved from the inferior surface of the liquid, provides an aeriform medium which does not conduct heat, but merely transmits radiant heat, which, passing through the liquid, as through most transparent substances, heats it but slightly. Thus evaporation is slow. The temperature of the liquid, it is well known, remains constantly below that of the boiling point. This accounts for the much greater length of time required for water to evaporate when resting upon an oiled surface than when in contact with wood or metal; and for the length of time that dew-drops or spiders' web will sustain exposure to the sun, when compared with that which would be required to evaporate an equal quantity of water from a surface where there is actual contact over a considerable area, and where conduction may take place.

The explosions sometimes following the first contact of a piece of potassium or sodium with water are due to the admixture of evolved hydrogen and atmospheric air. The explosion at the conclusion of the burning of the potassium or sodium is of another character. It is due to the sudden contact of the hydrate of potash when the temperature has become sufficiently low to permit it, and is analogous to the phenomenon witnessed when the surface supporting a mass of water in the spheroidal state is permitted to cool down until contact takes place.

The explosions occasionally witnessed where a large quantity of fused saltpetre has come in contact with water, are of this description.

The explosions of steam boilers have recently, in several instances, been ascribed to the properties of steam evolved from water in the spheroidal state, or evolved at the instant contact between the water and boiler is resumed. This is called a highly explosive steam. Not an experiment has been made of which the author is aware, going to show any difference between this and ordinary steam.—It is conceived that in some way the mass of water in a boiler becomes separated from the interior surface of the metal, as in the experiment of Leidenfrost; and that upon cooling down to about 280° to 300° F. contact is resumed, and from the sudden evolution of steam, explosion results. But boilers of ordinary strength would sustain any pressure which could be exerted from steam, produced within its own walls at a temperature of 300° F.; and by the conditions supposed, the water in the boiler has been already more highly heated; else it could not have been *cooled down* to this temperature. A higher heat must have subjected the boiler to greater pressure, and yet that increased pressure had been sustained.

Louisiana.

New Orleans, Jackson and Northern Railroad.—In our paper of the 19th ult. we gave a very brief abstract of the 'Address to the people of Louisiana' published by the committee of Ways and Means of the New Orleans, Jackson and Northern railroad. Some of the facts there stated are so significant, that we now proceed to give them more in detail.

The committee report that they have organized a provisional company, and opened books for subscriptions in the city of New Orleans, and at different points in the line of the proposed road. Under this arrangement, the amount of stock already taken has reached $400,000.

The report says:—

"The progress of Louisiana, notwithstanding her great natural wealth, has been but slow, in comparison with many of her sister States, whilst New Orleans, once the emporium and mart of the immense empire of the West, sees her commercial rank and position fading away in the triumphant struggles of a host of formidable rivals. The valley of the Mississippi, the natural tributary of New Orleans, has been rapidly increasing in wealth and population, while the commerce of the city has not increased, as will be seen by a comparison of the years 1849 and 1850:—

NUMBER OF VESSELS.

Year.	Flatboats.	S'mboats.	Am.	Foreign.	C'ste.
1849.	1496	2873	697	344	1558
1850.	924	2784	522	378	1342
Dec.	572	89	175	....	216
Inc.	....	....	....	34	....

TONNAGE.

Year.	American.	Foreign.	Coastwise.
1849.	240,844 42	101,196 10	161,899 62
1850.	175,167 35	176,344 02	412,126 01
Dec.	65,657 07	24,852 08	49,773 61

The comparison of these years must not be considered as an isolated case; but on the contrary, is too true an expose of the course of trade in this city, for several years past."

After recommending that New Orleans should, in order to regain her commercial advantages, make liberal appropriations for railroads, &c., the report says, that experience has demonstrated that in all communities where public spirit has not been generally awakened, it will not do to rely solely upon individual subscriptions for the promotion of great public works. A tax on real estate is, therefore, proposed; this plan has been successfully adopted in Virginia, Tennessee, Kentucky, Alabama and elsewhere. The committee say:—

"A tax upon real estate is the fairest, most equal and best that could possibly be devised, since it is real estate that must first feel the benefit; and it is this that gives a fixed and permanent interest to the holder and revenues, more independent of his individual agencies than any other description of property. That real estate is the first to feel the beneficial influence of internal improvement is evidenced by the practical experience of every portion of the country. The valuation of real estate in the city of New York in 1825, the year of the opening of the Erie Canal, was $58,425,395. In 1833, the year after the completion of the Ohio Canal connecting the Ohio river with Lake Erie, it was $114,124,566, and in 1840, when these improvements had time to develop themselves, it had swelled up to the sum of $187,121,714. In the ten years preceding the opening of these improvements, the valuation of property scarcely underwent any change; but in the fifteen years following these improvements, the value of real estate had increased over 300 per cent. The same effect is observa-

ble in the country. The population and the valuation of properties in the counties of New York traversed by the Erie railroad, was:—

	Population.	Real and Personal Estate.
In 1830	460,562	$43,484.588
In 1840	564,685	84,000,350
Increase it ten years	104,123	$40,515,770

In Massachusetts, where there have been $75,000,000 invested in railroads, the increase in the value of property is more striking:—

In 1840 it was	$299,878,329
In 1850 it was	590,521,881
Increase in ten years	$290,653,552

In Tennessee the same results has been produced in four counties traversed by the Nashville and Chattanooga railroad:—

In 1848 the assessed value of property was	$23,864,043
In 1849 the assessed value of property was	26,418,682
Increase in one year	$2,554,639

Still more striking have been the results in Georgia. Population, production and wealth have there increased in a ratio that seems almost the result of magic. As real estate, therefore, feels more directly the influence of these improvements, it is but just that it should bear the weight of their construction. In fact, no other property can be reached with even an appearance of fairness and equality, especially property of an intangible kind. In a commercial community, capital in trade should be the last to be touched. It should meet with especial favor, more particularly in cases like this, where the sleepless rivalries of other communities must be encountered in the contest for trade, and where the slightest disadvantages will often turn the scale in favor of, or against the one or the other.

"The question of determining whether this tax shall be imposed or not, could not be submitted to a more proper tribunal than to the people themselves, whether in the city or in the parishes through which the road shall run. The majority of these are proprietors of real estate; the whole with but few exceptions, expect or desire to be, and are interested in the application of its value, as they are in the maintenance of its rights."

In order to show the capacity of the country for the support of a railroad, the following statistical table of the value of property and amount of population is appended:—

Recapulation of the value of property—of improved and unimproved land—of production and population.

Parishes.		Total valuation of property	Population. Free	Slaves.	Total.
City of New Orleans	1st May	24,950,805	33,561	8,110	41,671
	2d May	40,257,967	45,947	6.087	52,034
	3d May	7,981,653	19,890	2,812	22,702
		73,140,422	99.398	17,009	116,407
City of Lafayette		6,643,453	10,929	1,371	12,300
Jefferson, exclusive of Lafayette		4,979,365	7,801	4,825	12,626
St. Charles		3,464,590	988	4,132	5,120
St. John the Baptist		3,977,550	2,778	4.540	7,318
St James		6,947,710	3,347	7,751	11,098
Ascension		5,800,327	3,436	7,766	11,252
Livingston		559,335	2,543	841	3,384
St. Helena		1,116,217	2,366	2,196	4,562
East Baton Rouge		5,783,472	5,627	6,351	11,973
East Feliciana		5,080,618	4,084	9,512	13,596
		117,491,259	143,347	66,294	209,641

In the estimate of property and population in New Orleans, Algiers is not included.

The amount of production for the year is as follows:—Corn, 1,906,964 bushels; Rice, 1,248,314 lbs.; Sugar, 72,230 hhds.; Molasses, 3,585,416 gallons; Cotton, 13,178 bales.

The report concludes with the following strong arguments, showing the feasibility and necessity of the road in contemplation:—

"1. The Jackson railroad is demanded from the people of New Orleans, if they would retain large portions of the trade of Mississippi and Tennessee, which promise to be diverted by the interprise of Mobile to that city, but to control which our road will furnish equal advantages, if not greater.

"2. The Jackson road, when extended as it will be to Selma and Montgomery and to Holly Springs, the Tennessee river, Knoxville, etc., and the Ohio, will have in its favor at least all the advantages claimed for the Mobile and Ohio road, which it will intersect, in addition to the advantages of larger capital in New Orleans, better organized and established markets, and that advantage which is more readily understood than defined, which grows out of habits of trade long fixed, and which cannot be readily disturbed by slight, or oftentimes by considerable advantages in other quarters. Trade will follow its accustomed channel; its diversion can only be the work of time and of great preponderating benefits. In the case of Mobile these benefits do not exist. Both cities are situated with very nearly equal advantages with regard to the Gulf of Mexico and the ports of the North and of Europe. Neither, perhaps, can expect a monopoly. There is enough for both, and with the two roads both cities can go on to prosperity—without them, neither can.

"3. The Jackson road will connect by a short and speedy route with the projected roads of Virginia, with the cities of the Northeast, without the delays of the present Atlantic or river routes.

"4. The Jackson road, by opening more certainly and speedily to us the counties of Middle Tennessee and North Alabama, will check-mate the roads of Carolina and Georgia, and divert the trade which otherwise must inevitably go into that quarter. The route is shorter to New Orleans, and the inclinations and curvatures of the alignment far more favorable—consequently freights can be made much less. Nor are there any advantages enjoyed by Charleston and Savannah over New Orleans, in freights, expenses, insurance, etc., as have been presented. The following figures, which are prepared from the best sources of information, show this:—

Charges on one bale of Cotton from Tennessee river, above the Muscle Shoals, to Charleston, S.C.

Freights from Whitesburg on steamboat to Chattanooga, at 20c per 100	$1 00
Charges at Chattanooga, receiving and forwarding, drayage, etc., 50c per bale	0 50
River insurance, at 3-8 per cent on $50	0 19
Railroad charges from Chattanooga to Charleston, 60c per 100	3 00
Weighing, 6 1-4c per bale	0 06
Storage, one month, at 25c per bale	0 25
Fire insurance, one month, 1-4 per cent. on $50	0 13
Commissions 2 1-2 per cent	1 25
Total	$6 38

Charges on a bale of Cotton from Whitesburg on the Tennessee river, above the Muscle Shoals, to New Orleans.

Freight from Whitesburgh to New Orleans.	$2 25
River insurance on $50, at 1 1-2 per cent	0 75
Fire insurance on $50, 1 month, at 1-2 per cent	0 25
Drayage, storage and weighing	0 50
Commission 2 1-2 per cent	1 25
Total	$5 00

The advantages possessed by these Atlantic cities are not so large as to admit of any increase in the rate of freight. With this road, New Orleans, by virtue of her local position and her reputation as a cotton mart, which give her cottons an advantage in price over those of any other market, will be able to retain her own against many odds; at all events, she will be a fair competitor with those Atlantic cities, who otherwise must have the field entirely to themselves."

New York.

Hudson River Railroad.—The Hudson river railroad it is still confidently asserted, will be completed through early in October. The section to Tivoli will be opened it is said, as early as the 10th of August. This will leave but thirty miles of steamboating.

Alabama.

We find in the Alabama papers the report of the committee appointed at a recent convention of the friends of railroads, for the purpose of preparing an address to the people of that State, in favor of extending in their collective capacity, aid to the leading lines now in progress. The address commences by statements of the influence of railroads in promoting the growth and prosperity of a community, sustained by some of the strongest illustrations that our experience in them afford. Massachusetts with one-seventh the area of Alabama, and with vastly fewer natural resources, has a larger population, greater wealth, owing in part to the influence of these works. New York was forced to construct the Erie railroad at enormous cost, through a thinly settled country, for the purpose of connecting herself with the west. From the cities of Boston, New York, Philadelphia, Baltimore and Richmond, five great lines of railway are either constructed or in progress, "stretching in a continuous chain from the Atlantic cities to the banks of the Mississippi, and only pausing there until the new states west of that river shall gather strength to carry them onward still further towards the Pacific. Every additional mile thus opened for traffic expands the area of eastern commerce, and moves further south the dividing line from whence the valley seeks an outlet for its produce by the Mississippi to the Gulf."

While the North has been active in the construction of railroads, and has built more than ¾ of all the roads in progress, the States of the South have embarked slowly, and with extreme caution, in similar improvements, and up to 1851 have put in operation about two thousand miles of railway; nine hundred miles of which, or nearly one-half, are within the limits of Georgia, and about eighty-five miles in Alabama.

Georgia (says the report) the only southern state which can be said to have a complete railroad system, presents an example full of wisdom and instruction to her sister states—a lessen by which many of them are endeavoring to profit. Before the commencement of her railroads, Georgia suffered a large and increasing drain, from the emigration of her people with their property to the new states. With a soil nearly exhausted by improvident culture, and steadily depreciating in value—her towns and villages participating in the general decay, and every interest languishing—her future prospects seemed gloomy indeed. But, as her lines of improvement penetrated the interior, providing speedy channels of communication with the principal markets, the efflux of population was arrested, a general spirit of enterprise began to pervade all classes, and this noble state at once started forward upon a new and unexampled career of prosperity. Every pursuit has felt the revivifying influence, and all branches of manufacturing and mechanical industry flourish to a degree hitherto unknown among us. This revolution has followed the expenditure of fourteen millions of dollars, upon judiciously located railways, which are earning from eight to sixteen per cent. per annum profit to the stockholders upon their cost, while the taxable property of the state has increased in 1850 to upwards of $335,600,000, being almost double the valuation before the commencement of her public improvements, and $143,000,000 more than the taxable property of Alabama in 1849.

It was impossible that Georgia should reap this abundant harvest from her enterprise, without exciting the emulation of her sister states, and accordingly we find that, with the exception of the Gulf states, the entire south is benefiting by her experience, and where individual effort is found too feeble, the strong arm of state is readily put forth in aid of purposes so important to the common weal.

Such, being the position of railway enterprise in this country, it remains for us to inquire in what

manner Alabamy is to be affected by the improvements of her neighbors, and what will be their bearing upon her future prosperity.

Alabama contains an area of 50,000 square miles, exceeding in size the State of New York with an unusual proportion of fertile soil. In 1820 her population was only 128,000. In 1830 she numbered 309,000; an increase of 181,000, or 142 per cent. in 10 years. From 1830 to 1840, her increase was 282,000, or 91 per cent. The quantity of land entered from 1820 to 1830 was 1,544,000, and from 1830 to 1840, 7,048,500 acres.

As soon as the best located lands lying in the immediate vicinity of the navigable rivers were fully occupied, the sale declined, and from 1840 to 1850, only 880,000 acres passed into private hands, and became subject to taxation. The same causes served to check the flow of population from abroad and by the census of 1850 it is found that the ratio of increase for the previous ten years had fallen from 91 per cent to about 30¼ per cent, the actual gain since 1840 being 185,500 souls, which is 101,500 less than for the previous decade, and 500 below the increase from 1820 to 1830.

Of 32,500,000 acres comprising the territories of Alabama, but 16,000,000 acres were in the possession of individual owners in 1850; the residue. 17,500,000 acres—more than half the area of the State—being still in the hands of the general government. The comptroller's report for 1849 makes known the fact, that 12,000,000 acres only of the 15,000,000 acres of private lands are assessed for taxes, having an average value of $3 98 per acre; thus showing that nearly two thirds of the lands of the state fail to yield any revenue whatever to the government.

For the past five yers, the amount of lands taken up by individuals have only averaged 80,000 acres. At this rate, 250 years would elapse before the title of the United States would be finally extinguished.

Reasoning from these statistics (says the report) there is good reason to apprehend that Alabama has reached, if she has not yet passed, her culminating point. The south Atlantic states, which have hitherto greatly contributed to swell the population and wealth of Alabama by emigration, are not only retaining their people at home, by the superior facilities of intercommunication which they have provided, but are themselves, in turn, becoming recipients of the emigration from less favored districts.

A few years ago, Georgia sought a remedy against depopulation through the establishment of railways, with such complete success that she enjoys to-day the proud distinction of being considered the "Empire State of the South." Alabama has attained the period in her history when it becomes necessary for her also to guard against a similar evil. The rapid progress of improvements in anjoining states, not only increases the magnitude of the danger, but renders the necessity for exertion on the part of our state doubly urgent; lest that portion of her produce which now finds an outlet at her only commercial port, Mobile, shall be divided among themselves by our enterprising neighbors, and contribute to swell the tide of their prosperity at the expense of our own. As has been already stated, "the question is now settled, that a state without railways, will not only fail to increase in corresponding ratio with other states possessing these improvements, but she must actually retrograde in proportion to the inducements held out by her neighboring states to attract population to themselves."

The experience acquired by the practical operation of extensive railway lines in various portions of the country, during the last ten years, furnishes a safe guide in examining the prospects of a projected enterprise, and estimating their probable success. Although, save the application of a portion of the Internal Improvement fund appropriated by Congress for the purpose, this state has given no encouragement to the construction of railways within her borders, yet individual efforts have not been wanting. The Montgomery and West Point railroad—the pioneer improvement of Alabama—extending 85 miles to the Georgia line, after encountering numerous difficulties, is now, through the well directed energies of its managers, in successful operation, and earning an income of nine per cent. on its capital. In 1848, the cause of improvement received a new impetus in the organization of the Mobile and Ohio Railroad company, for the purpose of making a railway connection between the Gulf at Mobile and the Misisippi valley at the mouth of Ohio river. This stupendous work, the longest in the Union under a single charter, will be 521 miles in length when completed, traversing fonr states, and crossing six degrees of latitude in its course to the Ohio, where it will connect by the Cairo and Chicago road with a series of interesting lines, embracing over two thousand miles of road already completed or in progress, and extending to all the states of the north west. Operations were commenced in October, 1848, at the Mobile terminus, and thirty-three miles of the road will be in operation in December next.

The Alabama and Tennessee river railroad, another work of eminent value to the state, was revived under favorable auspices in 1849, and is now being prosecuted with untiring zeal and energy. This road, extending about 200 miles, through a section of Alabama rich in undeveloped mineral wealth, and isolated from market, will have its northern terminus at Gunter's Landing, on the Tennessee river, and its southern terminus at Selma, on the Alabama. It will open, for the first time, to the inhabitants of North Alabama, the means of commercial intercourse with their own seaport. In addition to its local importance, this road possesses other prominent advantages. In the language of the chief engineer, "It is a link in the great chain of railroads now constructing and projected on the most direct and most expeditious route which can be selected to connect the Gulf of Mexico with the middle and north-eastern Atlantic states; a route which will present one continuous line of railroads, passing through one of the most healthy and picturesque sections of the Union." A short branch will also place this road in connection with the railway systems of Georgia and Carolina.

The Memphis and Charleston railroad, on the route surveyed through North Alabama, will connect with the Selma road by a short branch from Huntsville, and intersect the Mobile and Ohio railroad in East Mississippi, about 300 miles north of Mobile, thus giving the valley of the Tennessee abundant and easy access to the Gulf by a journey of 20 hours.

A line to pass through Perry, Marengo and Sumter counties, has likewise been projected; which will make a valuable connection between Selma and Mobile, striking the Mobile and Ohio railroad about 200 miles from that city, and accommodating a rich and populous section of the State.

East of the Alabama river, the Girard and Mobile company has been organised, to build a railway from Columbus, Georgia, to Mobile bay.—Another very feasible plan for making this desirable connection is now spoken of, by constructing a branch of 30 miles from Columbus to Opelika, and using the West Point railroad to Montgomery, from thence building a road to some point on Mobile river, a few miles above the city—thus saving a considerable expenditure, and perfecting the railway chain between Charleston, Savannah and Mobile. Which ever of these two routes be decided upon, a large business will be obtained from through travel, and a valuable part of the state opened to cultivation and improvement.

These five principal lines, if promptly carried forward, would constitute for Alabama as good a railway system, perhaps, as could well be devised. A large proportion of the vacant lands in the state would be traversed by them, and, in consequence, be eagerly purchased and brought into cultivation. Her iron, coal and marble would remain imprisoned in their native beds no longer, but the smoke of a thousand forges would arise from the wilderness, furnishing profitable employment to a numerous population. Her boundless forests of valuable timber would be transported to the sea and converted into gold. The remotest corners of the state would be brought into convenient neighborhood, and a complete revulsion effected in her commercial and social intercourse.

The estimated cost of these railways, with ample equipments for their probable business, is nearly as follows:

Alabama division Mobile and Ohio railroad from Mobile to south line Kemper county, Mississippi—164 miles....	$3,062,000
Alabama and Tennessee River railroad, from Selma to Gunter's Landing—about 200 miles.....	3,500,000
Alabama and Mississippi railroad, from Selma to intersection Mobile and Ohio railroad—100 miles.....	1,500,000
Memphis and Charleston railroad, from Chattanooga railroad to intersection with Mobile and Ohio railroad—150 miles.....	3,000,000
Girard and Mobile railroad—230 miles.	2,000,000
Making a total of 844 miles, requiring an expenditure in Alabama, to place them in actual operation, of.....	$13,062,000

Only 61 miles of the Alabama division of the Mobile and Ohio railroad are within the state, yet, (to employ the words of their report,) its Southern terminus being as her chief commercial city and only seaport, Alabama will be the largest recipient of the immense benefits which will flow from its completion. The effect of such a highway as this upon the advancement of its Gulf terminus, Mobile, cannot be over estimated. Her foreign and domestic trade would rapidly increase—capital would flow in from abroad—her exports be diversified—her harbor whitened with the canvass of every nation, and she would enter at once upon a career of solid and enduring prosperity. In whatever advancement takes place in Mobile, the state at large participates, more or less. To a planter, seeking a market for the sale of his produce, it offers increased competition, and abundant means among purchasers, enabling him at all times to make ready sales, and realize the highest prices; while, on the other hand, it furnishes him with the largest, cheapest and most varied market for every thing he wishes to buy. It throws into his immediate neighborhood a large class of consumers, for the minor products of his plantation, for which he has at present no sale. To the inhabitants of the coal and iron districts of Alabama, it becomes a great mart, from whence the products of their industry can be distributed through a large extent of country. While this great trunk line will intercept and gather into itself a vast traffic from all parts of the Northwest, by means of the many intercepting lines with which it will be united, the Selma and Tennessee road will fulfil similar conditions, in regard to the various railways of the Northeast; and thus, by a comparatively moderate outlay, the state of Alabama will be placed in profitable connection with all the grand railways through all parts of the union.

From her geographical location on the Gulf, Alabama is in an admirable position to take advantage of the railways constructing in other states, and to turn the immense trade and travel which will pour over them into her own seaport, by the early completion of these two North and South lines, and the two cross lines intersecting them. Should she seize the golden opportunity, it needs no prophetic ken to foresee for the state an increase of wealth as great and as rapid as have been realized in the last ten years, in either Georgia or Massachusetts.

While railroads are thus shown to be indispensable to the progress of the South, the sparse population which exist in most sections, renders there construction beyond the ability of private means.—Hence the greater necessity of aid from the State than exists at the North. The report states that in all cases where State aid has been extended, the result has fully vindicated the wisdom of such policy. Alabama has every inducement to assist the progress within her own territory, as this can be done without the risk of loss, and as such aid is indispensable to the completion of her roads.

If, however, continues the report the arguments thus far adduced be deemed insufficient, there is

still another most important relation which railways bear to the state, that should arrest the attention of our statesmen and legislators. A few years more and the Mississippi Valley will control the political destinies of the country. The Northern States possess five great railway avenues leading into that valley, and the South *not one.* These arteries of commerce ever pulsating east and west, are daily bearing immense multitudes, back and forth between the Mississippi and the Atlantic.—The extremes of the Republic are thus brought near to each other and continue to intermingle together. Commercial interests awaken mutual sympathies, and they become united by the strongest ties. How could it be otherwise than that a people thus brought into frequent communion should represent in the national councils the interests of those with whom they fraternize? By pushing on our railways, we do not only develope local resources of our own state to the utmost, but we also reach the heart of the great west, and make a highway from the Gulf to the Lakes, upon which an immense traffic would spring up, removing old prejudices and creating new sympathies—making the south and west better acquainted—opening a thousand avenues of good feeling and brotherhood, and causing our institutions to be better understood and our rights to be fully respected. A smaller sum, in proportion, than has been contributed by most of her sister States, would, if judicously distributed among the five lines now contemplated and in progress in Alabama, be sufficient, in addition to private subscriptions to carry them forward to early completion, and enable her people immediately to realize their benefits. Should this amount be given by the State as a *bonus* for the construction of these railways, there can be no question that it would be a wise and profitable expenditure of public funds, from which she would reap pecuniarily, a tenfold return. But when it is considered that these improvements may be effected by a loan only of her credit, for the payment of which she will at all times give a substantial security; that railways less favorably located, elsewhere, are yielding fair incomes upon the capital invested; that a great and rapid increase in the value of property invariably follows their construction, and that no possible risk of loss would be incurred by the State; it is unreasonable to suppose that she will fail to meet the expectations of her citizens by refusing to extend a helping hand to the enterprise which they have undertaken.

Atlantic and St. Lawrence Railroad.

From the recent annual report of the directors of this company, we learn that the whole amount expended and charged in the general construction account is $2,826,175 38.

The receipts into the treasury from assessments on shares to July 1st, and credited to capital stock, amount to $1,068,419 40.

Received from the sale of City of Portland bonds, $1,225,000.

Received from the sale of bonds of the company, including those issued to Wood, Black & Co., under their contract, $365,000.

The whole number of shares of the capital stock of the company now standing on the books is 11,066 —making.....$1,106,600 00
Collected on the above..... 1,068,419 40

Balance due on stock..... 38,180 60

Almost the whole amount of this may be relied on as available means.

The gross earnings of the road, including mail pay and rents for the year, are $173,447 73.

Net income of the road for the year, $103,228 30.

During the year ending June 30th, the number of miles run by the passenger trains is.....77,922
Miles run by freight trains.....45,040
With gravel and wood trains.....18,662

Total miles run.....141,624

Since the last annual meeting, the route from the boundary of New Hampshire to the Connecticut river has been determined, and the line located by Berlin Falls, and thence up the Dead river to the head waters of the Ammonoosuc, following this stream to the valley of the Connecticut river at Northumberland. The grades through New Hampshire are very favorable.

Every exertion will be made to have the road completed and opened for travel and freight to Northumberland during the early part of the coming winter. No work will be done beyond Northumberland until the point of junction with the Canadian road is definitely determined and agreed upon. We understand that surveys and examinations of the different routes on the Canadian side of the line are nearly completed, and we expect the point of junction will be immediately settled, and the road definitely located to the boundary or point of junction.

The work on the Canadian portion of the line is said to be now progressing with great vigor, and that 90 miles, from Montreal to Sherbrook, will be completed in the course of the present year.—The Canadian corporation is amply provided with means, as we are assured, for the completion of their part of the joint undertaking, and no delays or suspension of the work need be apprehended on their side.

With us, the great difficulty of providing the balance of cast means required for the completion of our part of the road to the boundary is now to be met. The company have thus far met all their engagements promptly, and have on hand sufficient means to reach the Connecticut river. A contract has been made by the contractors, and guaranteed by the company, for 4,500 tons of rails, nearly sufficient, with 2,000 tons of rails on hand, purchased by them since the last annual meeting, to lay the track to the boundary line.

In order to raise the balance of cash means required to finish our whole road to the junction, the directors have authorised an issue of $800,000 of bonds, in addition to the amount of bonds to be paid under the contract to Wood, Black & Co.—These bonds are payable in 15 years, with semi-annual interest, making the whole issue of our new bonds, $1,500,000, secured by a mortgage of all the property of the corporation, second to the mortgage to the city of Portland, as security to the city for the loan of its bonds to the company, to the amount of $1,500,000.

The indebtedness of the company on the completion of the road will be as follows:

Loan of the city of Portland bonds on 20 years	$1,500,000
Issue of company's bonds on 15 years...	1,500,000
Whole debt	$3,000,000

less the amount of the sinking fund.

From the Treasurer's report we extract the following:

The whole net income to July 1, 1851, is $205,-872 21.

The income of the road, for the past year, has been derived from operating the road to Paris, 47½ miles, during the whole year, and to Bethel, 23 miles more, for 3½ months—that part of the road being opened the 15th of March last; and the income account for the year ending July 1st, presents the following results:

Total receipts from—		
142,883 passengers		$81,004 99
57,647·19 tons merchandise		80,321 17
Mail		3,257 00
Rents, wharfage, and use of cars, etc., on connecting roads		8,864 57
		173,447 73
The current expenses have been:		
For maintenance of way	$14,868 59	
Locomotive power	14,892 09	
Train expenses	16,181 74	
Office establishment	4,520 35	
Station expenses	7,718 25	
Mail	353 23	
General expenses	721 64	
Fuel	10,963 54	
		70,219 43
Net receipts for the year		$103,228 30

Cincinnati and Chicago Railway.

The Richmond Palladium states that upwards of $100,000 have been subscribed in Cass county, payable in cash, towards the extension of the road northwest. The amount of stock taken in Howard and other intermediate counties is large, though the exact sum is not known. The prospects of the road are good.

The Newcastle Courier says that the stock already subscribed is more than sufficient to prepare the road for the metal from Richmond to Newcastle, and negotiations are on foot for means to complete the whole line early next summer, and also for the heavy T rail, and no doubts are entertained of their favorable issue. The best feeling prevails among the people, and "no road ever commenced with better prospects." The Jeffersonville company have purchased the Shelbyville and Edinburgh road, and leased the Shelbyville and Knightstown road for five years, and propose to have the whole line from Knightstown to Jeffersonville, by way of Columbus and northward to Newcastle, finished within twelve months.

Pittsburg, Steubenville and Columbus R.R.

We learn, says the Cincinnati Gazette, from private sources, that this road, the whole length to intersect the Columbus and Zanesville road at Newark, will be built beyond all question. The lettings for 110 miles of the grading and masonry, from Steubenville to Newark, is advertised in another column. Mr. Kilgore, the President, deserves great credit for the energy with which he has pushed forward this enterprise against many discouraging circumstances.

New Hampshire.

New Hampshire Union Railroad.—The grantees of this railroad convened at Keene on the 23d of July, and chose for directors—Samuel Dinsmoor, President; Josiah Colony of Keene, Chester W. Chapin and Azariah Boody of Springfield, Joseph A. Gilmore of Concord, John G. Fuller of Hillsboro, Milan Harris of Harrisville, Asahel H. Bennet of Winchester, and Alvan Munson of Munsonville. Wm. L. Foster was chosen clerk of the corporation.

Maryland.

Coal Railroad.—We understand, says the Cumberland Civilian, that W. H. Smith, Esq. engineer and superintendent of the George's Creek Coal and Iron company, will shortly proceed to put under contract the railroad to connect that company's valuable coal property at Lonaconing with the Baltimore and Ohio railroad, either at Piedmont or at some two miles above the mouth of Savage river.

Ohio.

We learn from the Elyria Courier that the work on the Junction railroad is progressing rapidly.—The cement to be used for the construction of the stone work on Black river has arrived at that place, and a large portion of the stone are already prepared and ready for laying. Mr. Morton, the chief engineer, is actively engaged in surveying and locating the road in the western part of the State.

North Carolina.

Raleigh and Gaston Railroad.—At a recent meeting of the stockholders of this company, at Henderson, it was ascertained that $270,000 was subscribed to the capital stock. To comply with the conditions of the act of the last General Assembly of this State, it will be necessary to raise $130,000 more. This will be done, doubtless.

Buffalo and Conhocton Valley Railroad.

Proposals are advertised for the work on the Buffalo and Conhocton Valley railroad, from the northern part of Steuben county to Batavia—sixty-five miles. The first forty-five miles are already prepared for the rails, and will be in running order this fall. Four engines with corresponding passenger and freight cars have been purchased, and will be delivered as needed.

Railroad Iron.

THE Undersigned offer for sale 2,000 tons of Railroad Iron, to arrive at New York in the month of September next. It is of a most approved pattern and quality, and weighs about fifty-five pounds to the yard.

CHOUTEAU, MERLE & SANDFORD.
No. 51, New Street.

New York, August 9.

American Railroad Journal.

Saturday, August 9, 1851.

To our Subscribers.

Under the operation of the new postage law, by which the weight of the paper determines the rate of postage, we have recently made the large permanent addition of eight pages to the former size of our paper, making now one of the largest papers published in the United States. We shall also in future deliver paper to our subscribers stitched and trimmed, a matter of very great convenience to the reader, though with much greater cost to ourselves. The present form under the old law subjected the paper to pamphlet postage—under the new, the rates are established by *weight*.

With an increased size we hope to add to the usefulness of our paper. We shall now be able to give during the year a full statement of the operations of every railroad company in the United States, and shall keep our readers informed of the various improvements that are daily making in the science of locomotion, the great fact of modern times.

In our money articles we shall endeavor to give an accurate view of the state of the market, a matter of great importance to new works, that are obliged to rely upon foreign aid. We shall also give weekly, a full and carefully prepared price current of stocks and railroad securities; and also a general review of monetary and commercial affairs.

As an excellent medium for advertising all such articles as are used by our manufacturers and railroad companies, our paper stands unrivalled. We number nearly every railroad in the United States among our subscribers, and we receive no advertisements that are not appropriate to the object of our paper. Our advertising department constitutes now a full and valuable directory for persons and companies wishing to supply themselves with almost every article of iron and machinery.

Our paper is exclusively devoted to the promotion of the railroad interest. We are conscious of no local attachments or predilections. A press reflecting the feeling and spirit of New York can have no partialities of this kind. This city is the great centre of our railroad system. She is equally interested in the railroads of Georgia, Mississippi, and Illinois, as in those within her own borders.—The products to which *all* our railroads give an outlet to a market, come directly to this city for distribution. A New Yorker cannot understand the significance of State or local boundaries.

The JOURNAL has now been regularly published for nearly twenty years. Its existence is coeval with our first efforts at railroad construction. It may, we believe, justly claim to be the organ of the railroads in the United States. Our position in all respects is one of perfect independence, and we shall on all occasions speak of every project as we think it deserves. Those wishing information on railroads will, we trust, find our paper to be a correct and authentic record of their condition and movements. To new works it will be of especial value in presenting their claims to the attention of the public and capitalists.

Stock and Money Market.

The panic in the money market continues without much change. Money is difficult to be had on any terms, and nothing whatever is doing in securities of new works. Stocks have receded rapidly for some days past, and they are now at a lower price than they have touched for a long time. The prevailing opinion is that money will be comparatively plenty again in a few weeks. The stringency has been owing chiefly to the action of the banks in curtailing their discounts, with a view to check the exportation of specie. The result in the end will be salutary, though but little can be said in favor of the manner in which business was almost instantly brought to a dead stand. If the issues of banks were too large, they should have been curtailed gradually, to give time to prepare for the altered state of things. Should a check be put to our exportations of gold, the banks will immediately fall back into their old habits.

It is on the whole better that a considerable portion of our California receipts should go abroad. If they all remained at home they would become the basis of a paper circulation, and the result would be an enormous inflation of our currency.

A good reason for believing that there cannot be a permanent scarcity of money, is the general prosperity which prevails. Crops are most abundant throughout the whole extent of our wide domain, and nearly every branch of industry is meeting with good returns. The receipts of all our railroads and canals are very rapidly increasing, while prices of stocks are either stationary or receding, which is a very favorable feature.

Of our leading stocks, the Erie has receded to the greatest extent. This was to be expected, without having reference to the condition of the market, or the absolute value of its stock. It may be laid down as an axiom that the stock in every road will fall when the line is open for travel. Of a road in progress, the most extravagant results may be predicated, and the community may be made, by a dexterous management of public opinion, to believe in them. Expectation in this manner is wrought up to the highest pitch. This is sure to flag after a road is opened, and its success made to depend upon its earnings. Our most successful roads have been these whose stocks at such periods have been most depressed.

Corn is now being transported from Toledo, Ohio, to New York for $4 50 per ton, or 13 cents per bushel. The distance is nearly 900 miles—making the whole cost about one-half per cent per ton per mile.

This cost of inland transportation, a portion of it over artificial routes, is, we believe, without parallel in any part of the world. Upon the completion of the enlargement of the Erie canal, we have good reason to believe that this extremely low rate will be reduced to $3 50 per ton, for the same distance. The return freights for heavy articles of merchandise is still lower. The President of the Dayton and Western railroad informed us a few days since, that he paid only $4 50 per ton, for the transportation of his iron from New York to Dayton. This sum included all charges.

The great secret of the prosperity of this city, are the facilities which she enjoys of cheap communication with the interior. Every year witnesses an improvement in this respect. So rapidly has the cost of transportation been reduced, it is difficult to estimate the lowest point to which it may yet be brought.

It will be well for all enterprises, rivals to the canal, to pay a proper regard to its capacity for cheap carriage, or they may be mistaken in their calculations, of their ability to take away its business. Every year has the importance of this great work steadily increased, till the value of merchandise that now annually passes over it, exceeds the whole amount of our foreign exports.

The city which will first be effected by the enlargement, will be *New Orleans*. It will practically change the direction of the Mississippi river. A great part of Western produce will soon take the northern route. Every year enlarges the influence of this city. A great part of the railway iron, which formerly went by way of New Orleans, is now shipped direct to New York, and thence forwarded by canal. A portion of the iron for the Jeffersonville (Indiana) railroad, has taken this direction. It cost we believe only about $7 per ton, to send rails from this city to Louisville, Kentucky.

New Orleans is now casting about to devise means to secure herself from the rivalry of southern cities. Her great rival, after all, is New York. We can see no good reason why this city should not take from the former a greater part of the trade of the Upper Mississippi and its tributaries. She is already making strong drafts in this direction.—The figures which we have given above show what she is capable of doing. With an ability to reduce these to a much lower point, can she fail in her object to command the western trade? To a merchant in New Orleans the inroad which New York is making upon what he once considered his legitimate field, must certainly give rise to many disagreeable reflections.

Columbia and Philadelphia Railroad.—The redeipts on the Columbia and Philadelphia railroad for the month of July and the fiscal year, show an increase of $23,583, as follows:

Amount as per last report	$205,674 50
Do. month ending July 31, 1851	24,619 68
Whole amount since Nov. 30 1850	$230,294 18
Same time last year	206,710 71
Increase	$23,583 47

New York and New Haven Railroad.—The receipts of this road for the month of July, as compared with the corresponding period of last year, were as follows:

Passengers	$59,829 72
Freight	8,513 30
Total	68,343 03
Less paid Harlem railroad	4,799 28
Net income	63,543 71
July, 1850	47,229 67
Increase—26 per cent	16,314 08

Harlem Railroad.—The receipts of this road for the month of July were $60,000 66, against $49,025 64 in the corresponding period of last year.—Increase, $10,975 05.

Erie Canal.—The amount received for tolls on all the New York State canals during the 4th week in July, is.....$121,032 59
Same period in 1850..... 105,217 58

Increase in 1851.....$15.815 01

The aggregate amount received for tolls from the commencement of navigation to the 31st of July inclusive, is.....$1,520,873 34
Same period in 1850..... 1,240,349 68

Increase in 1851.....$280,523 66

Naugatuck Railroad.—The earnings of this road for the month of June last were as follows:

From Passengers..... $5,675 81
From Freight..... 14,992 80
From Mails and Express..... 312 12

Total.....$20,980 73
The earnings of June, 1850, were..... 12,628 54

Excess of June, 1851, over 66 per cent. $8,352 19

The receipts for the six months ending 30th June last show an increase over the same period of 1850 of 39 per cent.

The capital stock of the company is... $926,000
Bonds bearing interest 7c per annum amount to..... 440,000

Total.....$1,366,000

Erie Railroad.—The business on the Erie railroad for July shows an increase of about $4,000 over June. As compared with July of last year the increase is very large.

ERIE RAILROAD, JULY, 1851.

Passengers and Mails.....$131,093 91
Freight..... 97,366 42

$228,460 33
July, 1850..... 104,053 22

Increase.....$124,407 11

The exports of specie from this port for the week ending August 2d, and for the year, are as follows:

Steamer Asia, Liverpool—American gold $.511,183
" " English silver.. 5,500
" " English gold... 24,898
" " Am. and French silver..... 100,000
Schooner Euphemia, Malaga—Five francs 13,990

Total July 26 to August 2..... $655,571
Previously reported..... 22,942,366

Total for 1851.....$23,597,937

The following is the coinage of the Philadelphia Mint for the month of July, 1851:

Gold.	Pieces.	Amount.
Double Eagles.....	118,198	$2,353,950
Eagles.....	18,285	182,850
Half Eagles.....	20,304	101,520
Quarter Eagles.....	142,732	356,830
Gold Dollars.....	226,335	235,335
Total.....	534,854	$3,240,495
Silver.	Pieces.	Amount.
Half Dollars.....	10,000	5,000
Dimes.....	47,000	4,700
Half Dimes.....	80,000	4,000
Three Cent Pieces....	719,400	21,582
Total.....	1,891,254	$3,275,777
Copper.	Pieces.	Amount.
Cents.....	771,072	$7,710 72
Half Cents.....	100,878	504 39
Total.....	2,263,204	$3,283,992 11

Gold Bullion deposited from California from 1st to 31st July, 1851, inclusive..... $3,053,000
From other sources..... 77,000

Total..... $3,130,000
Silver Bullion depoitsed in same time. $13,800

Movements on the Canal—We have obtained from some of the principal offices on the canal, the number of boats weighed during the period of navigation this season, up to the 1st August, by which it will be seen that the movement shows a large increase over a corresponding period of last year.

At Albany, the whole number of boats weighed up the 1st August, 1851, was.....2,588
Up to same period, 1850.....1,407

Increase over 1850.....1,181

At West Troy, the whole number of boats weighed up to 1st August, 1851, was.....4,863
Up to the same period, 1850.....4,090

Increase over 1850..... 768

At Rochester the whole number of boats weighed up to 1st August, 1851, was.....4,423
For the same period in 1850.....2,881

Increase over 1850.....1,541

At Syracuse, the whole number of boats weighed up to 1st August, 1851, was.....2,644
For the same period in 1850 1,056

Increase over 1850.....1,588

At Utica the whole number of boats weighed up to 1st August, 1851, was.....2,383
For the same period in 1850 3,084

Decrease in 1851..... 701

Railway Share & Stock List;

CORRECTED WEEKLY FOR THE
AMERICAN RAILROAD JOURNAL.

NEW YORK AUGUST 9, 1851.

GOVERNMENT AND STATE SECURITIES.

U. S. 5's, 1853 .....100¾
U. S. 6's, 1856.....105¾
U. S. 6's, 1862 111
U. S. 6's, 1862—coupon.....113a114
U. S. 6's, 1867.....114½
U. S. 6's, 1868 .....116⅝
U. S. 6's, 1868—coupon.....121¼
Land Warrants.....140a145
Arkansas 6's.....52a53
Alabama 5's.....91a92
Indiana 5's.....82a83
Illinois 6's, 1870.....65a68
Kentucky 6's, 1871.....109a110
Massachusetts sterling 5's.....105a106
Massachusetts 5's, 1859.....100½
Maine 6's, 1855.....103
Maryland 6's.....102½
Michigan.....—
Mississippi .....—
New York 6's, 1865.....117a118
Ohio 6's, 1860 108
Pennsylvania 5's.....90½a91

RAILROAD BONDS.

Atlantic and St. Lawrence, 6 per cent..... 85
Baltimore and Ohio, 1857..... 94½
Boston and Providence 6's, 1855..... 101
Boston and Worcester 6's, 1855, convertible..107½
Bost., Concord and Mont. 6's, 1860, mortgage. 87½
Cheshire 6's, 1860..... 91½
Connecticut River 6's, convertible..... 98
Erie 7's, 1859.....100
Erie 7's, 1868.....107
Erie income 7's..... 91
Hudson River 7's, 1853.....101¾
Michigan Central, convertible, 8's, 1856.....104½
New York and New Haven.....100½
Norwich and Worcester, mortgage, 1860..80a85
Old Colony, 1854..... 97½
Ogdensburg 7's, 1859..... 96
Portsmouth and Concord.....80a85
Passumpsic 6's, 1859..... 94½
Rutland 7's, 1863..... 97
Reading mortgage, 1860..... 80
" " 1870..... 75
Sullivan, mortgage 6's, 1855..... 80
Vermont Central 6's, 1852..... 96½
" " 6's, 1856..... 91½
Vermont and Massachusetts 6's, 1855..... 86½

RAILROAD STOCKS.

[CORRECTED FOR WEDNESDAY OF EACH WEEK.]

	Aug. 6.	July 30.
Albany and Schenectady.....	96¼	—
Atlantic and St. Lawrence....	60a65	—
Androscoggin and Kennebec..	30a35	—
Boston and Maine.....	103	103
Boston and Lowell	110½	—
Boston and Worcester.....	100½	100½
Boston and Providence	48	85½
Bost., Concord and Montreal...	40	—
Baltimore and Ohio	70	—
Baltimore and Susquehanna....	40	—
Cheshire.....	54½	—
Cleveland and Columbus.....	—	—
Columbus and Xenia.....	—	—
Camden and Amboy.....	—	—
Connecticut River.....	68a70	—
Delaware and Hudson (canal)..	113	—
Eastern	93½	95
Erie.....	72½	76
Fall River.....	95	91½
Fitchburgh	108½	109½
Georgia.....	—	—
Georgia Central.....	—	—
Harlem.....	67	68½
Hartford and New Haven.....	124	—
Housatonic (preferred).....	52	—
Hudson River.....	75	—
Kennebec and Portland.....	50a55	—
Little Miami	—	—
Long Island.....	16⅞	15
Mad River.....	—	—
Madison and Indianapolis.....	96	—
Michigan Central.....	104	103¼
Montgomery and West Point...	—	—
Michigan Southern.....	—	—
Manchester and Lawrence.....	95½	89
Morris (canal).....	15½	15½
New York and New Haven....	113	—
New Jersey.....	133	—
Northern.....	66	—
Nashua and Lowell.....	107½	—
New Bedford and Taunton.....	111	—
Norwich and Worcester.....	53½	53
Norfolk County.....	18a20	—
Ogdensburgh	35⅝	32½
Old Colony.....	65	66
Passumpsic.....	80	—
Pennsylvania.....	—	—
Pittsfield and North Adams.....	95	—
Philadelphia, Wilm'gton & Balt.	29¼	29
Petersburg.....	—	—
Richmond and Fredericksburg..	—	—
Richmond and Petersburg.....	—	—
Reading.....	51	53
Rochester and Syracuse.....	105½	—
Rutland.....	53	47
Stonington	42	44¾
South Carolina.....	—	—
Syracuse and Utica.....	130	—
Sullivan	30	—
Taunton Branch.....	110	—
Troy and Greenbush.....	90	—
Tonawanda.....	—	—
Utica and Schenectady.....	130	—
Vermont and Canada.....	103	—
Vermont Central.....	30½	33
Vermont and Massachusetts....	26½	27
Virginia Central.....	—	—
Western	102½	103
Wilmington and Raleigh	—	—
York and Cumberland (Pa.)....	21	—

From the St. Louis Intelligencer of 10th July.

The Pacific Railroad.

Awarding of the Contracts.—The committee appointed for that purpose by the directors of the Pacific railroad, awarded a portion of the contracts for the first division yesterday as follows:

To David Woodman, of St. Louis, masonry of sections 5 and 6, and graduation of section 6.

To Messrs. Parke & Burke, of Cleveland, Ohio, graduation and masonry of sections 16, 17, 25, 30, 31, 32 and 33.

To Francis Dugdale, of St. Louis, graduation of section 22.

To George Houston, of Cincinnati, Ohio, masonry of section 22, and graduation, masonry and ballasting of sections 7, 8, 9, 10, 11, 12, 13, 23, 24, 27 and 28.

To John Weston, of Cincinnati, Ohio, graduation, masonry and ballasting of section 29.

To Michael Powers, of St. Louis, masonry of sections 2, 3, and 4.

To E. Gartwell, of Terre Haute, Ia., graduation of sections 18, 19 and 20.

All the bidders above named agree to take ten per cent. in stock in payment of their contracts.—The whole amount of stock obtained from contractors will be about $60,000, leaving only about $140,000 necessary to be raised in order to secure the State's subscription of $1,500,000.

The contracts for the construction of the first division of the Pacific railroad, being about forty miles, will fall about $35,000 below the estimates of the engineer, Mr. Kirkwood.

Proposals for the masonry and graduation of about nine sections, and the ballasting of about twenty in the first division, remain to be acted upon, and will doubtless be disposed of to-day.

Vermont

Annual Meeting of Connecticut and Passumpsic Rivers Railroad Company.—The annual meeting of the Connecticut and Passumpsic rivers railroad company was held at St. Johnsbury House on the 29th, by an unusually large number of stockholders. The report was read by the President, and accepted with great satisfaction. The progress and success of the road was spoken of as a marvel in those days of depreciation in railroad stocks generally.

Speeches were made by distinguished individuals from abroad. Among the rest, a *telling* one from Hon. G. H. Nesmith, upon the great resources yet to be developed in the eastern townships of Canada, and in the rich country between St. Johnsbury and the line. Hon. Portus Baxter of Derby Line, advocated the extension of the road through to the line, there to connect with the Canadian road, and a resolution was presented and unanimously adopted, "that the road be put under contract to Derby Line, so soon, as in the opinion of the Directors, a sufficient amount of stock be subscribed for *at par*, to warrant its commencement." Board of directors elected:—Erastus Fairbanks, Josiah Stickney, W. Thomas, William F. Weld, Benjamin B. Mussey, Fitz Henry Homer, Oliver Dean, Emmons Raymond, John C. Lee, Asa Low, Elijah Cleveland, Arthur Latham, Lewis H. Delano, Samuel L. French, E. B. Chase. The last three are new directors, Mr. Delano being chosen in place of Mr. Sawyer, resigned, and Messrs. French of Derby Line, and Chase of Lyndon, being added to the number of the old board.—*Traveller.*

Indiana.

Our Indiana Railroad Connections.—We are delighted in having it in our power to inform our readers that the Jeffersonville railroad company has effected the purchase of the Edinburgh and Shelbyville railroad, and have already taken possession of it. They have also leased, for the term of five years, the Shelbyville and Knightstown road. This is a move of great importance to Louisville, as it secures to us the trade of the richest portion of Indiana.

The necessity of completing the road from Jeffersonville to Columbus at the earliest day practicable, in order to put it in direct connection with the Shelbyville and Knightstown roads, and in fact all the important roads in Indiana, must be apparent to every one. The proposed subscription of $200,000 to this road by our city authorities, will enable the directors to complete it to Columbus this year or early next year, and we are glad that the vote is to be taken on the proposition at an early day. Every day's delay is so much lost, and let us but once open communication with, and divert the trade of Central Indiana to this point, and we defy Cincinnati or any other place ever to wrest it from us. The opening of the Jeffersonville road will work a greater change in the business of Louisville, than the most sanguine friends of the enterprise have any conception of.—*Louisville Courier.*

Central Railroad Continuation.—Our citizens will be gratified to learn that the line of railroad from Michigan city, West, to the Illinois State line, and thence to Chicago, is making rapid progress towards completion. An efficient corps of engineers are superintending the grading of the track, and the timber for the superstructure is already being got out all along the route. Mr. Brooks, the indefatigable Superintendent of the Central road, is now engaged in an examination of the line, and his presence on the ground will doubtless give renewed impetus to this great and much needed enterprize.

Our Chicago neighbors feel naturally much interested in the speedy completion of the railway communication between their city and ours, and will, we are assured, use all the means at their command, to facilitate the operations of the company in their endeavors to get the entire route in running order, and fully in operation by the opening spring.—*Detroit Free Press.*

Ohio.

Hamilton and Eaton Railroad.—We learn from the Cincinnati Gazette that a Committee of the City Council, sent out to examine the condition of the Hamilton and Eaton railway, reported to council, after careful examination, that the line is rapidly approaching completion, and the first eighteen miles from Hamilton to Camden, will be in running order by the 1st of November next, and from thenee to Eaton in the Spring, if the work is pushed. The road from Eaton by Richmond and New Castle to Chicago, is also in rapid progress. The following abstract was appended to the report:—

Eaton and Hamilton Railroad Office,
Eaton, Ohio, June 21. 1851.

Abstract of condition of work on the Eaton and Hamilton railroad, June 20, 1851:

Cash disbursed on account of construction and expenses therewith connected	$70,377 71
Bridge, lumber, cross-ties, &c., paid for in stock	5,900 00
Depots and Real Estate donated at Eaton and on the line	9,700 00
Thirty miles of Right of Way donated and to be paid for in stock	15,000 00
Work done this Month, and materials in process of operation, estimated to be worth when delivered or received	30,000 00
Four thousand tons of iron contracted for, to be paid for in bonds	145,000 00
Amount subject to city bonds	$275,977 71

Besides construction, the lumber for and building of all the bridges on the line, and about 70,000 cross-ties are contracted for and being, from time to time delivered, towards which about one-fourth is to be received in stock.

After a debate, a resolution reported by the committee was adopted, viz:

Resolved, That the President and Recorder for the time being, of the City Council of the city of Cincinnati, proceed to issue the Bonds of the city of Cincinnati, to the amount of fifty thousand dollars, agreeable to the provisions of the resolutions and ordinance of the 29th November, eighteen hundred and fifty, and they take from the officers of the Hamilton and Eaton railroad company, a mortgage to secure payment and the interest, agreeable to the provisions of said resolution and ordinance, and be approved by the council, said President and Recorder shall issue said bonds.

Cincinnati and Dayton Railway.—It is now certain that the Cincinnati, Hamilton and Dayton railway will soon be opened to the public. The whole line to Dayton, presents unmistakeable evidence that the road will soon be ready. The rails are down on a large portion of the line, a few sections here and there remaining unfinished. Locomotives and gravel cars are running to and fro transporting materials, &c. Station Houses for passengers and freight, and work shops are going forward rapidly at Cincinnati and Dayton—water and wood stations are in progress—the difficulty at the crossing of Mill Creek, has been overcome—the bridges over the Creek and the Miami are nearly all ready, as are the passenger and burden cars. We hear that conductors, and agents have been appointed, who are perfecting themselves for active duty.—But a few weeks will elapse before you may all ride at ease on this excellant road, in cars of the first class, under gentlemanly conductors, and at low rates. New lines of Omnibusses are to run in connection with this road to all parts of the city.—A general ticket office will be established at or near the corner of Broadway and Front Streets. The officers, directors and contractors, are all very busy in getting all things ready and in first rate order.—*Cincinnati Gazette.*

Ohio and Indiana Railroad.

This company is organized under a charter granted by both states, for constructing a railroad from Crestline, the western terminus of the Ohio and Pennsylvania railroad, to Fort Wayne, on the Wabash and Erie Canal, in the state of Indiana. Its length is 132 miles, through a country unsurpassed in fertility and capacity for the production of agricultural articles of commerce.

The route passes through the counties of Crawford, Wyandott, Harden, Allen, and Van Wert, in Ohio, and Allen county, Indiana, and through the towns of Bucyrus, Upper Sandusky, Lima, Delphos, and Van Wert, in Ohio, and terminates at Fort Wayne, Indiana.

The subscriptions of stock have been procured from the following sources:—

Crawford county	$100,000
Wyandott, "	50,000
Allen " Ohio	100,000
Allen " Indiana	100,000
Townships, subscriptions	50,000
Individual subscriptions	70,000
Total	$470,000

The amount necessary to grade and bridge the road, according to the estimate of the Engineer, J. R. Straughan, Esq., will be something short of $3,800 per mile, or not far from $500,000 for the whole road. This road passing over the level table lands of Ohio, will be one of the straightest and cheapest in the country. No grade will be over 26 feet to the mile, and the curvatures will be very slight. The Engineers are locating the track for letting, and if the directors can negotiate bonds for $200,000, from the county of Allen in Ohio, and Allen in Indiana, which they will no doubt succeed in doing, the whole line will be put under contract this fall.

There is one fact connected with this railroad, which should command attention. There are no competing roads running in the same direction. All the improvements of Ohio and Indiana run north and south from the lake to the river. The Pittsburgh Gazette remarks: "All other lines proposed from this city, and Wheeling, and Parkersburgh, take a southwest direction towards Cincinnati. This is the only great east and west railroad which penetrates the northern and richest parts of Ohio and Indiana, and ere long we may add Illinois, until it reaches Chicago, Galena, and the mouth of Rock River, on the Mississippi—for a branch is now projected to that point.—Is is the only direct east and west railroad to the great Northwest, comprehending in its range, not only the northern parts of Ohio, Indiana, and Illinois, but also Michigan, Wisconsin, Iowa and Minesota. A road more important, and which will prove more beneficial, and which will pay better dividends, we

believe has not been built or projected in this country."

Vermont.

Vermont Valley Railroad.—The length of this link in the great Connecticut chain of railroad is about 23 miles. There has already been expended in construction $895,216 05. The amount required for the completion of the road is stated at $123,265 62,—making the entire cost $1,018,481 67, or over $50,000 per mile!

The receipts of the company have been as follows:—

For capital stock received	$480,895 00
For bonds issued	409,200 00
For temporary loans	11,765 62
Total amount received	$901,860 62
Deduct total of expenditures, as above	895,216 05
Balance on hand	$6,644 57

The Preeident of the company is Hugh H. Henry, Esq., the Treasurer, Robert Schuyler, of this city.

Louisiana.

The Red River Railroad.—The New Orleans papers speak in enthusiastic terms of the advantages to be secured by a railroad from Shreveport to that city. The rich tract along the Red River, and about the head waters of the Sabine, Trinity, and Brazos rivers, is undoubtedly a section of country to which New Orleans must in future look as one of the principal sources of her trade; and the rapidity with which it is now being settled, makes it important for that city to open the means of sure and constant communication with it at all seasons, before its trade finds its way by its rivers to the Gulf coast, and thence, like the commerce of all Southwestern Texas, forms its alliances and connections with New York.

This project is by no means a new one. As long ago as 1846 or '47, a series of articles was published in the Concordia Intelligencer, showing the importance to New Orleans and the upper regions of Texas, of opening a railway communication from Shreveport to some point on the Mississippi river. A general reconnoisance of the country was made, and the cost of the road was then estimated at less than ten thousand dollars per mile.

Again in 1849, in a series of articles in the same paper, the subject was revived, and the feasibility and cost of extending the road to Rio Grande and ultimately to San Diego was considered, and the project was urged upon the citizens of New Orleans as the initial step to secure the terminus of the great Pacific highway at our doors. The route subsequently marked by Gen. Worth as the route for the Pacific railway, was the same as indicated by the writer of those papers. The cost of the road as estimated by Gen. Worth, and as stated in those papers was the same.

The New Orleans Crescent says:—

"From lake Providence to Shreveport is but seventy-five miles. From Vidalia to the same point on Red River, the distance is about one hundred miles. From either of these points, the country is extremely favorable for the construction of a railroad. The cost would not exceed $750,000, or $1,000,000, and it would pass though a body of rich public lands, from which a donation could be obtained from Congress, that would pay for the construction of the road. If prosecuted with energy the road could be built in a year. It would terminate on the river so near New Orleans, that there would be no danger of the trade being diverted from us to Charleston or other Atlantic ports, for it would cost no more to bring the cotton from it to our city than to ferry the bales across the Mississippi and place them on a railway car on the opposite bank. This road would therefore secure all the benefits to this city that a railway hence directed to Shreveport would give us. It would not be a rival to any other enterprise, and thereby avoid all clashings of interests. It would open a permanent communication with the fertile regions of Bayou Mason, the Tensas, Black and Washita rivers, now closed to us by low water six or eight months in the year; and should the Opelouses road be extended to Shreveport and take the trade beyond that point directly to the city, this road through the upper parishes of the state, from the Red River to the Mississippi, would find ample support in the trade along its line, and would add each year benefits to the country through which it passed, greater in value than the whole cost of the road. We hope the citizens of the northern portion of our state will not allow this project to remain long a mere design on paper. The difference in the cost of their groceries, bagging, and the freight of their cotton in one year would pay for the road."

For the American Railroad Journal.

Opening of the Ohio and Pennsylvania Railroad.

Henry V. Poor, Esq.

Sir,—On Wednesday, July 30th, the formal opening of the first section of the Ohio and Pennsylvania railroad took place, by conveying over this portion of the line about 300 invited guests including the authorities of the cities of Allegheny and of Pittsburg.

This section begins at the Federal street depot, in Allegheny city, on the right bank of the Allegheny river, and of the Pennsylvania canal, and continues down the right bank of the Ohio river, about 26 miles to the mouth of the Big Beaver, and thence two miles farther by the left bank of that stream to the town of New Brighton, a total distance of 28 miles from Allegheny city.

The excursion train, led by the *Salem*, and Norris engine, made the distance down in 2.49—up in 2.20. The time was slow because the track is not yet entirely ballasted, and some ugly land slides rendered it necessary to run with great caution.

The plan and profile both, are, however, well adapted to high speed, the whole of the 28 miles now opened being nearly level, and having no curvation of less than a half mile radius.

The road for this distance is graded for a double track, and the streams encountered are mostly bridged with stone arches.

The track consists of a 4 by 10 sub-sill laid flat upon the grade, and reinforced at the joints by a short parallel piece, externally. Cross-ties of oak about a yard apart, rest on the sub-sills, and upon these ties the rail is secured by the usual spikes with wrought iron chains at all the joints.

The rails, in lengths of 20 feet each, weigh 400 lbs. or 60 lbs. to the yard, lineal, they are well shaped, with a heavy head, symmetrical on both sides so as to admit of reversion.

The depots, and water stations, (now nearly finished) are plain and substantial structures, planned evidently, upon the basis of combining utility with economy.

The whole work is very creditable to the experienced engineer, (S. W. Roberts, Esq.,) who planned and executed it. It has been thus far finished, within the space of fifteen months.

Arrived at the Merrick House, New Brighton, a plain but substantial dinner was found prepared, and partaken of by most of the guests, at fifty cents a head.

A meeting was then held which was eloquently addressed by the Chief Engineer. He reiterated the policy of his company to push out their line upon the water shed of Ohio, to the Cleveland and Columbus road at Crestline, 185 miles from Allegheny city, and there to branch and continue it, by the exertions of other companies, through Bellefontaine, Indianapolis, and Terre Haute, to St. Louis, on the west, and by Fort Wayne and Chicago on the northwest.

In its passage outward this line makes an important connexion with the Cleveland and Pittsburg railroad at the new village of Alliance, and from the observations of the orator, it would appear that the first business object of this line is to gather up the way trade of the western reserve, the great wheat growing district of Ohio—now raising six millions of bushels of wheat annually—and being emphatically, *the land of bread.*

Secondly, to push out through Central and Northern Indiana (by the aid of others) to St. Louis and Chicago, and thus become the trunk line for the trade of those important geographical points.

And *thirdly*, by the cut-off route from Loudonville through Mount Vernon, to Springfield, 110 miles, to run to Cincinnati by a line, indirect, it is true, but still short enough (340 miles in all from Pittsburg) to enable this route, if sustained by its way trade—as is expected—to compete powerfully for the through business. Still this Cincinnati connexion is deemed entirely *secondary*, and not at all indispensable to the success of the line, as a paying road.

It remains to be seen, however, whether the powerful attraction of this great commercial centre, will not make itself felt, to a degree which will render it difficult to leave its sphere of attraction, when once fairly entered with a railroad line; such points are not to be disregarded or lightly treated, in the projection of railroad routes across the country.

Some observations in the course of the address of the chief engineer being thought to reflect upon other railway lines, in which Pittsburgh now takes interest, were replied to by a member of the council in a manner which elearly showed that while Pittsburgh was ready and willing to award to the president and directors of the Ohio and Pennsylvania railroad company, and to their distinguished engineer, a just meed of praise for their able and skilfully directed exertions—nevertheless, that city was not disposed to limit her railway connections west to that line alone, but to encourage others of importance to her prosperity, whether they should prove to be competitor lines or not.

The other routes referred to, strike for Cincinnati as a point in chief,—if then the business o that place is but secondary to the Ohio and Pennsylvania railway, in her grand movements upon St. Louis and Chicago, *those other routes can be in no sense rivals of this.*

The necessity of an immediate connection of the Ohio and Pennsylvania railroad with the Central Pennsylvania, or its prompt continuation from its present terminus in Alleghany City into the Town Plat of the city of Pittsburg, was also alluded to at the meeting. Pittsburgh being unwilling that this great line of railway should be broken by the Alleghany river—and it is evident indeed, that it can it cannot possibly be to the interest of either of the great railways reaching the Alleghany river, on opposite banks, to stand thus, severed by that stream, and render necessary a vast and costly system of drainage, which a viaduct constructed at a proper point would at once prevent.

Where that point is, none are more capable of deciding than the eminent engineers employed by the two companies, at least such is the opinion of

Excursion.

For the Railroad Journal.

Cincinnati and Seaboard Railways.

H. V. Poor, Esq.

Sir,—The competition in railways west of the Alleghenies, have been the means of developing, quite recently, a most important railroad line from the Seabord to Cincinnati; which, but for the excitement produced by rival routes, might have long remained dormant, and perhaps have never gained the prominence it merits, as the shortest of all projected routes, from the sea to the commercial centre of the west—taking Philadelphia as a common point upon the first, and the city of Cincinnati, as holding at the present time, the latter position.

This route is the one lately taken hold of with so much energy by the citizens of Pittsburg, under the spur of events, tending by the action of the Cincinnati and Belpre company, to render the Hempfield route a trunk line for some of the leading railways of Ohio.

The route into which the city of Pittsburgh is now infusing a vitality that will probably enable it to triumph over all obstacles, begins with the Pittsburgh and Steubenville railway, and is continued through Ohio, by the Steubenville and Indiana, and the Zanesville, Wilmington and Cincinnati lines.

This route truly deserves the designation of the *Grand Diagonal Line*. Excepting your New York and Erie railway, which appears to have a higher destiny than merely to command the business of a single line or point of country—the Seaboard and Cincinnati railways, are *four* in number, and designating them from the common point of Philadelphia, southward, have the following lengths to Cincinnati:—

1. *Philadelphia* via the Pennsylvania railroad, through Pittsburgh; the Ohio and Pennsylvania railroad to Loudonville, Ohio; the Loudonville, Mount Vernon and Delaware railroad, to Springfield; and by the Little Miami railroad to *Cincinnati*.—Total distance, 695 miles.

2. *Philadelphia*, via the Pennsylvania railroad through Pittsburg; the Pittsburg and Steubenville railroad, to Steubenville; the Steubenville and Indiana railroad, and a modification of its Western division, through or near Cadiz and Cambridge, to Zanesville; the Zanesville, Somerset, Lancaster, Circleville, Washington and Wilmington railroad, to the mouth of Tod's Fork, on the Little Miami; and by the Little Miami railroad, to *Cincinnati*.—Total distance, 645 miles.

3. *Philadelphia*, via the Pennsylvania railroad through Greensburg; the Hempfield railroad to Wheeling; the Wheeling and Marietta railroad along the Ohio river to Marietta; the Cincinnati and Belpre and Hillsborough railroads to Lovelands, on the Little Miami; and by the Little Miami railroad, to *Cincinnati*.—Total distance, 675 miles.

4. *Philadelphia*, via Baltimore and Wilmington, to Baltimore; the Baltimore and Ohio railroad to Tygart's Valley bridge; the Northwestern Virginian railroad to Parkersburg; the Cincinnati and Belpre and Hillsborough railroads to Lovelands, on the Little Miami; and by the Little Miami railroad to *Cincinnati*.—Total distance, 685 miles.

None of these great lines have been actually traced upon the ground *throughout*, and some portions of the distances have to be estimated. They have, however, been compiled in most cases from the statements of the friends of the lines, and may be relied upon as approximately correct.

The Baltimore line west, is taken at eleven miles more than the recent statement of its President, he having claimed credit in the account for eleven miles possible saving, by the "Knobly cut off," abandoning Cumberland; an improvement which will not for many years (if ever) be made.

The third main line may leave Wheeling for Cincinnati, by the Central Ohio railroad, through either Zanesville or Columbus, and may be a few miles shorter by the former, or longer by the latter point.

As we have said, the distances in the aggregate are nearly correct, and will exhibit to your readers, in a compact form, the results to be expected in point of distance, from these four great lines, all of which promise from present appearances, to be in action within a few years. The longest one (the Northern Ohio) coming first into the field, and backed by its rich and weighty way trade, standing ready to wrestle shortly with its shorter rivals, when the time of trial comes.

Your attention is earnestly invoked to the second main route, "*the grand diagonal line*," which will certainly gain the point of Cincinnati, in a distance of 645 miles from Philadelphia, or be respectively, 50, 40 and 30 miles shorter than its three competitors.

Fifty miles shorter than the Northern Ohio, and thirty miles shorter than the Hempfield route, is something of importance to your readers, and to the public.

DIAGONAL.

For the American Railroad Journal.

Minot Rock Light House.

H. V. Poor, Esq.

Sir,—There has been a disposition in one quarter at Boston, which some of the public prints there have rather encouraged than otherwise, to attribute the destruction of the Minot Rock Lighthouse to faults in its plan or construction. Had its destruction not been attended with loss of life, this disposition might have found a "fit audience," but it would have been a very select one. The sympathy naturally felt for the two brave men who were lost with the light, found some relief in fixing the odium of that loss, with little examination, on those connected with its erection, and this spirit seems to have found a ready clerk in the keeper of the light, who with more rudeness than reason, had attacked its fitness for its purpose, had foretold its destruction, and may have been at a loss whether most to lament or to crow at the result of his prophecy.

The task of finding fault is so easy and attractive that it may safely be left in the hands into which it has fallen.

The last number of Appleton's Mechanics' Magazine, contain a copy of the report of Capt. Swift to Col. Abert of the topographical engineers, on the loss of the Minot Rock lighthouse. The details there given are very satisfactory, and show that every precaution was taken which human prudence and foresight could take to render the building safe as well as useful. It is no easy task to predicate, of any structure exposed to the sweep of the sea in storms, the right height, strength, and other qualities necessary to its permanency; and where in this respect Telford, Rennie, and the best English Engineers have so frequently failed in their early experience, we cannot expect to operate on the same ground without meeting occasionally with similar proofs of the incalculable power of the element we are contending with. In the case of the Minot Rock lighthouse, it is very evident *now* that the body of the light was not sufficiently elevated to clear the unusual storm which prevailed on the coast at the time it was carried away, and which has not been equalled since the September gale of 1814. We will venture to say that the testimony of a large majority of sea-faring men would have been in favor of its having sufficient height. Engineers must, to some extent, depend on such testimony in planning such structures. So soon as the sea reached the body of the light no amount of bracing or of tie-rods could have saved it, and that it did reach it, and that this alone led to its destruction is to my mind abundantly evident.

We know how difficult it has been lately to procure from Congress the appropriations necessary to the perfection of the lighthouse system along our coast; and how many lives are lost yearly, and how many valuable ships and cargoes are destroyed, in consequence of the entire want of lights, or even beacons, at many points where lights are necessary, and of the very imperfect distinguishing qualities of those which are in operation.

Captain Swift has labored zealously to procure the erection of new lights, and by bringing into notice certain cheap forms of lighthouse structures which have been successfully introduced on some points of the English and French coasts, he has reduced the difficulty of obtaining the requisite appropriations for their construction. The destruction of the Minot Rock light is no proof that such an iron structure is inapplicable in such a situation. It proves simply that to ensure the permanency of such a structure there, it requires to be modified to meet more exactly the circumstances of its position; and, with the experience in this case obtained at the expense both of distress and mortification, no man is so competent as Captain Swift to build a second light in the same place.

The amount of life saved by the erection of lights in such exposed positions, and the seasonable warning which they give to strange vessels coming on our coast, seems not to have been taken into consideration in the present instance; nor does it seem to have entered any one's mind to credit Captain Swift, and all those who like him have been laboring to procure the erection of lights at the many exposed and dangerous points along our coast, with any of the lives which their efforts have necessarily been the means of saving, or any of the property which has thus been enabled safely to reach a harbor. The captains of vessels at sea in distress know how to appreciate such labors, but we on land, safe from the fears and dangers of the storm, think little of the comfort and security which every new beacon affords the seaman, and take still less account of the difficulties attending their construction, and of the untiring efforts which have to be made to procure funds for their erection. If a building is destroyed by fire, and a life lost in consequence, much uneasy feeling is exhibited in print, which looks almost like affection when we consider how little effective notice is taken of the frequent shipwrecks occurring along the coast, and the frequent losses of entire crews of brave fellows, when within hail of a harbor.

Three-fourths of these shipwrecks are attributable to the want of a perfect system of lights, and three-fourths of them might be saved by the hearty co-operation and league for a short time of all men having any claim to good feeling, or disposed to devote adequate time either to the humane or to the merely economical consideration of the question. A tithe of the amount of interest given to some party election of little moment, would ensure the attention of Congress to this most important subject, and lead to the expenditures necessary to its being placed on the safest footing which the nature of the case admits. The neglect of our light-

house system is fraught with an incalculable amount of distress, the exhibition of which has thus far had as little effect on the community, as the destruction of human and animal life in the Roman circus, had on the minds of the spectators there.

Your obedient servant,
A SUBSCRIBER.

Patent Compound Rail.

Below we give the circular of the proprietor of the Patent Compound Rail, of which we have given frequent notice in our paper. We also give the certificates of Mr. Vibbard, of the Utica and Schenectady road, Mr. Post of the New York and Erie road, and Mr. Tucker, President of the Reading railroad; all of whom speak in the highest terms of this improvement.

The theoretical advantages of this rail are generally admitted. It is now practically working out an equally favorable opinion in its use. Those who have tried it, we believe without exception, are full converts to its merits, and we are glad to learn that it is becoming very rapidly introduced upon our roads.

The undersigned begs leave to call public attention to his "Patent Compound Rail," for railways, a tolerably correct view of which is given in an engraving in the Railroad Journal. Since this rail was first introduced, (now nearly two years), it has more than fulfilled the expectations that were entertained of it, and received the approbation of all who have had it in use, as well as those who have examined it; an increasing interest is being directed towards it in consequence of the defects in the ordinary forms of rails, and which become more and more apparent the longer they are continued in use. The object aimed at in the composite forms *is to produce a rail which shall approximate as nearly as possible to a continuous bar from one end to the other of the road.* I submit whether this is not practically accomplished by the rail herewith offered. The cross joints in the common form are avoided; chairs, clamps, plates, or other contrivances for securing the ends of the rails, are rendered wholly unnecessary; no abrupt depressions or elevations (occasioned by the settling of the rail at the joints) occur, but a smooth and even rolling surface is obtained, over which the engines and cars pass with scarcely any noise, and without any of that disagreeable jarring and oscillating motion usual upon the ordinary forms of rails.

If these results attend the use of the compound rail, it follows as a consequence that much of the wear and tear of rails and machinery will be saved, for if the rolling surface be uniformly smooth, there will be no concussion between the surfaces at rest and in motion; and if no concussion, then the engines, cars, and rails will last longer; so if there be no cross joints in the track, there will be no depressions thereat, but a smooth plain obtained, and the power required to pull loads of equal weights, or maintain equal speeds, will be *less* upon the compound than upon any of the old forms of rails. But the advantages of a *continuous* track over one composed of short bars laid together at the ends with joints (and frequently with wide spaces) at every fifteen or twenty feet, are too manifest to those familiar with the management of railroads to need demonstrating at my hands. It is admitted by all that the form of rail in common use is marked by serious defects, the chief of which is at the joints, (the weak point in the track,) and any improvement that obviates these evils, accomplishes a very important desideratum, effects a great saving in current depreciation of both rails and machinery, and correspondingly in the cost of running railroads, while it increases materially the safety and comfort of all who travel thereon.

By way of showing that these claims are not advanced as mere assumptions, I invite those interested in such matters to inspect the rail in use. A word as to the cost of this rail:—This, under certain circumstances, may be something greater than the common form, owing to the enhanced cost of manufacture; this, however, cannot be much, and is more than compensated by the improved quality of iron obtained in a rail of this form, arising from the *greater condensation of the iron*, while the cost of placing this rail upon the road *is less* than the common form, the expense of rivets and riveting being less than the cost of chairs, as shown by the following:—

Common or solid rail.—Cost of chairs, fitting same to rails and cross-ties, 528 joints per mile, at 55 cents per joint, rails 20 feet long	$291 00
One extra spike at each joint is 528 spikes, two to the pound at 3½ cts. per pound, is	9 00
	$300 00
Compound Rail.—Rivets, 4,750, ⅝ diameter, at three to the pound, is 1,583 pounds to the mile, at 4¾ cts. per pound, is	$75 18
Riveting at 24 cents per rod, is per mile	76 80
	152 00
Difference in favor of laying one mile of track with compound rail	$148 00

or about one and a-half dollars per ton of iron.

There are ten miles of these rails upon the Utica and Schenectady railroad. They are likewise in use upon the New York and Erie, Philadelphia and Reading railroads, and I refer to the annexed correspondance for the opinions of the gentlemen in the management of those roads, as to its merits. I think I am justified in saying that enough has been done by way of trial to demonstrate the *safety* and *economy* of this rail.

Orders for considerable quantities are now being executed for the Hudson River, Rochester and Niagara Falls, Buffalo and Conhocton Valley, Buffalo and Rochester, Utica and Schenectady, Syracuse and Utica, Michigan Central, Madison and Indianapolis, Cleveland and Columbus, and other leading roads in the country.

Utica and Schenectady R. R. Office,
Schenectady, March 1st, 1851.

J. F. Winslow, Esq.

Dear Sir,—Yours of the 4th of February, submitting various interrogatories relative to the "Patent Compound Railroad Iron" furnished by your company, and laid down upon this road, was duly received, to which I shall reply in general terms, making the ordinary T rail the standard of comparison. From my own observation and the experience of locomotive engineers, who are daily running upon the cempound in connexion with the T rail, (which is superior of its kind,) I am clearly of the opinion that there is a saving in the wear and tear to the machinery, of at least twenty-five per cent.

In passing from the T to the compound rail with the trains, a much higher rate of speed is attained with the same power, which can only be attributed to the non-resistance of the joints. There can be no doubt that a less expenditure of motive power is required upon the compound rail in pulling loads of equal weight, but to what extent I am unable to say.

In November, 1849, about one thousand feet of the compound rail, furnished by you, was laid down in connection with the T rail, in the main track, over which all trains passing westward from Schenectady were run. This part of the track has not been repaired or adjusted, nor has it required to be, while the T rail, which was laid at the same time, and with great care, has required repeated adjustment; the ten miles laid last fall has also kept in admirable adjustment.

The experience on this road, in that respect, is the same as upon all others where the T rail is in use. A very large proportion of the expense of adjusting the track, is at the joint or end of the rail, which is caused by the weakness or break in the track at that point.

This defect is entirely obviated by the use of the compound rail, which gives an equal and perfect bearing upon all the cross-ties, thereby reducing the expense of keeping the track in adjustment more than one half. No part of the compound rail has broken or been thrown out, while a large number of broken and defective bars of the T rail have been removed; neither has a wheel or shaft broken upon this part of the rail.

No chair is required in laying the compound rail, the saving in the expense of which, I consider more than equal to the additional cost of rivets, and riveting together the bars. Two or three rivets only have broken, since the rail has been in use, which, upon examination, proved to have been defective when driven.

Additional experience is wanted to determine the durability of the compound rail, in comparison with the T rail, that the result will be in favor of a compound rail, I see no reason to doubt.

Very respectfully,
Your obedient servant,
C. VIBBARD, Sup't.

NEW YORK AND ERIE RAILROAD.

Way and Structure Department,
Engineer's Office, July 7, 1851.

J. F. Winslow, Esq.

Sir,—I have very recently made a critical examination of the compound or continuous rail put down upon this road by Mr. A. B. Seymour, in September, 1849. This rail has now been in use *twenty-two months*, on a portion of the *main line*, nearly two miles from any station, where it has been subjected to the *highest speed* of a very heavy class of *engines* and cars. According to the best of my knowledge and belief, there has not been an hour's work done in adjusting this rail since it was first laid; yet, it is now in good order, and shows but little of the effects of wear and tear.

In my opinion this rail is the *safest* one in use, and with slight modification can be made as economical *if not much more so*, than the ordinary T rail. In many other respects I consider this two-part compound rail as superior to any other with which I am acquainted.

Very respectfully,
Your obedient servant,
S. S. POST.

Office of the Philadelphia & Reading R.R. Co.,
Philadelphia, June 26, 1851.

J. F. Winslow, Esq.

Dear Sir,—I duly received your favor of the 21st instant. The compound rail seems to do *perfectly* well thus far.

Yours very truly,
JOHN TUCKER, President.

TO CONTRACTORS.

Belpre and Cincinnati Railroad.

Engineer's Office,
Chillicothe, July 30, 1841.

SEALED PROPOSALS will be received at the Engineer's Office, in Chillicothe, until the 18*th day of September*, 1851, for the Graduation, Masonry and Bridging of 42 miles more of their road;—25 miles being between Greenfield and Blanchester, and 17 miles east of the 11 miles now under contract east of Chillicothe.

Plans, Profiles and Specifications will be ready for examination, at the Engineer's Office, on and after the 10th day of August. Blank Proposals will be furnished to Contractors, and all necessary information given upon the line or at the office concerning the quality and quantity of work.

W. P. CUTLER, Pre'st.
A. KENNEDY, Chief Engineer.

Virginia Locomotive and Car Works.

Wolfe Street and River Potomac, Alexandria, Va.
SMITH & PERKINS, *Proprietors.*

MANUFACTURE

Locomotive Engines and Tenders.
Marine and Stationary Engines and Boilers.
Chilled Car Wheels and Axles.
Patent Chilled and Wrought Slip-tire.
Machinery and Castings generally.

The undersigned having erected very extensive shops, and procured the most modern machinery and tools, are prepared to execute orders for Locomotive Engines, Cars, and Machinery of all kinds, with despatch, and on the most favorable terms.

R. C. SMITH,
Late of the Alexandria Iron Works.
THATCHER PERKINS,
Late Master of Machinery on the Balt. & O. R.R.
July 22, 1851.

Bridges & Brother,

DEALERS IN

RAILROAD AND CAR FINDINGS,

64 Courtlandt street, New York.

Having established a general Depot for the sale of articles used in the construction of Railroads, Locomotive Engines and Railroad Cars, we would invite your attention to our establishment. We have already in store a good assortment of CAR FINDINGS and other articles used in the trade, and feel justified in saying, that should you desire anything in our line, we can supply on terms perfectly satisfactory, and in the event of your desiring to order, you may feel assured that your terms will be as good as though you were here to make your own purchases.

Among our goods may be found Railroad Car Wheels, Axles, Jaws and Boxes, Nuts and Washers, Bolts, Brass Seat Hooks and Rivets, Window and Blind Springs, Lifters and Catchers, Door Locks, Knobs and Butts, Ventilators and Rings, Car Lamps, Coach and Wood Screws, Jack and Bed Screws and Babbitt's Metal; also Plushes, Damask, Enameled Head Linings, Cotton Duck for Top Covering in width sufficient without seams, Curled Hair and all other articles appertaining to cars.

Also a new and valuable CAR DOOR LOCK, well adapted to the Sliding Door. This is decidedly the best yet introduced.

LOCOMOTIVE ENGINE LANTERNS, the best article made in the country. Whistles, Gauge and Oil Cocks, Hemp Packing, American, Russian and Italian. We are also agents for Lightner's Patent Journal Box for Car Axles, that invaluable invention, for the economical use and preservation of Car Journals.

Coach VARNISH and Japan of the best quality.

We would also offer our services for the purchase as well as for the sale of goods on commission.—Both members of our firm have had the experience of many years in the manufacture of Railroad Cars, and our Senior was a member of the well known house of DAVENPORT & BRIDGES, Car Manufacturers, Cambridgeport, Mass. With our knowledge of matters pertaining to Railroads, we feel quite confident in giving satisfaction to both buyer and seller, and hope that through assiduity and attention to any business entrusted to our care we shall merit a continuance of confidence and patronage.

BRIDGES & BROTHER.

July 22, 1851.

Lightner's Patent Axle Boxes.

THE Undersigned are Agents for, and offer for sale, *Lightner's Patent Axle Boxes*, for Railroad Cars and Tenders, which have, by thorough experience, been demonstrated to be one of the most valuable improvements ever introduced in Locomotion. The saving effected in oil alone, will in a few months pay the first cost of these boxes, independent of other advantages. They are now in use upon the following, among other roads, viz:

Boston and Worcester, Boston and Providence, Boston and Fitchburgh, Nashua and Lowell, Providence and Worcester, Northern, N.H., Cheshire, Manchester and Lawrence, Concord, N.H., Concord and Claremont, Ogdensburg, (Northern, N.Y.) Stonington, New London Willimantic and Palmer, New Jersey Central, New Hampshire Central, Worcester and Nashua, Fitchburg and Worcester, Connecticut and Passumpsic, Lowell and Lawrence, Salem and Lowell, Wilton Branch, Newburyport.

Below will be found the certificates of a number of gentlemen, whose opinions will be good authority in every part of the country.

Office Boston and Prov. R. R.,
Boston, Dec. 28, 1849.

MR. JOHN LIGHTNER,

Sir,—It affords me pleasure to say, that after two years' trial of your boxes, I am fully and entirely satisfied of their superiority over any other pattern we have used. This superiority consists in economy of oil and freedom from "heating." I have tried every pattern of box in use, of any note, and do not hesitate to say, that you have devised one which in every respect combines greater advantages than any other within my knowledge; these advantages are so manifest, that I am fitting up all our cars with your boxes, as fast as practicable.

Annexed, is a statement of an experiment with your boxes, the result of which may be of use to your interests.

Ten passenger cars, running 72 wheels, fitted up with Lightner's boxes used 41½ pints of Patent Oil, at 50 cts. per gallon, ran 43,099 miles, equal to 5·18 pints per wheel for 43,099 miles. Speed, 30 to 40 miles per hour.

Very respectfully yours,
W. RAYMOND LEE, Supt.

I have examined the above statement of Mr. Lee, and fully concur with him in his opinion of the superiority of Lightner's box.

GEORGE S. GRIGGS,
Supt. Machine Shop B. & P. R. R.

—

Boston, July 26, 1849.

This is to certify that J. Lightner's axle boxes for railroad cars and locomotive tenders, have been in use on the Boston and Worcester railroad one year, and I unhesitatingly pronounce it, in my opinion, the best and most economical one in use, requiring less oil, of easy application, not susceptible of derangement, as in most kinds in use. When requiring repairs or renewal, the same may be done in one-fourth of the time usually occupied for that purpose. The box requires oiling not oftener than once a month—is kept quite free from dust, and consequently wears much longer than those generally in use.

D. N. PICKERING,
Supt. Motive Power, B. & W. R. R.

—

Office of Boston Locomotive Works,
December 12th, 1849.

The Boston Locomotive Company have been using J. Lightner's patent axle boxes under the tenders of their engines for several months, and find them more highly spoken of by the railroad companies that have used them in regard to economy in the use of oil, their durability and their ease of adjustment, than any other boxes which they have used. We therefore do not hesitate to recommend them to all railroad companies.

DANIEL F. CHILD,
Treas. Boston Locomotive Works.

—

Taunton Locomotive Works,
Taunton, July 7, 1849.

MR. H. F. ALEXANDER,

Dear Sir,—Your favor of yesterday came to hand in which you ask what success we have met with, in using Mr. Lightner's patent box for cars, engines, &c.

We have put it in use on the Boston and Providence railroad, New Bedford and Taunton Branch railroad, Central railroad, N. J., Norfolk County, Rutland and Burlington, and as yet we have not had one complaint from them; and from what we have used of it, and witnessed, we do not hesitate to say that it is superior to anything in use for that purpose. It is simple in its construction, and easy of access, and the reservoir is held close to the shaft, and the oil and journal is perfectly secure from dust; they will run from four to six weeks without replenishing the oil. The brass in the box is changed very much easier than by any other plan that we have seen.

Very resp. yours,
W. W. FAIRBANKS, Agent.

—

Office Providence & Worcester R. R. Co.,
Providence, Dec. 17th, 1850.

H. F. ALEXANDER, ESQ.,

Sir,—The "Lightner patent boxes" for cars and locomotives have been in use under a portion of the passenger cars and engines of this company for upwards of two years, and have given very great satisfaction.

Though combining many excellent qualities, their great superiority consists in the economy of oil.

The result of experiments upon this road shows the consumption of oil by the use of this box, to be not more than one sixth part the quantity consumed by the use of the common box.

With the common box, eight passenger cars, 64 wheels, running 90 miles per day, consumed in 12 months 520 gallons of oil, being an average of 8⅛ gallon per wheel per annum.

With the Lightner box the same cars running the same number of miles per day, during the same space of time consumed 73½ gallons of oil, being an average of 1⅛ gallon per wheel per annum.

So manifest are its advantages over any other box used by this company, it is intended to place it under all our cars as soon as practicable.

Besides the saving of oil, as they afford complete security from dust, we think them more durable than any other box in use.

Another advantage resulting from the use of this box is, cars run more easier than with the common box. The saving in fuel which it would effect, would of itself, we think be a sufficient inducement to use this box in preference to any other known to us.

Very respectfully,
ISAAC H. SOUTHWICK, Supt.
JOHN B. WINSLOW,
Supt. Machine Shop, P. & W. R. R.

—

Cambridgeport, April 5th, 1851.

H. F. ALEXANDER, ESQ.

Sir,—This may certify that I have been engaged in the manufacture of railway cars since 1834, and have built for the different railroad companies cars of all descriptions to the amount of three millions of dollars, and have used on the above cars all kinds of journal boxes, and find that none give better satisfaction than the "Lightner patent box," both on account of the saving of oil and the arrangement for taking out and re-placing the composition by means of the sliding key, and other conveniences which no other box possesses.

Yours respectfully,
CHARLES DAVENPORT.

—

Worcester, March 17th, 1851.

H. F. ALEXANDER, ESQ.

Dear Sir,—This is to certify that I have been for some years past engaged in building cars, and that I have tried most, if not all of the patent boxes, and have found Lightner's patent superior to all others as far as the saving of oil is concerned, also the ease with which they are fitted and exchanged in case they get out of order.

For the last three years, I have put them under all of the cars I have built, and in every instance they have given the most entire satisfaction.

Yours truly,
OSGOOD BRADLEY.

—

Office Union Works, So. Boston,
May 23d, 1851.

This certifies that I have applied Mr. J. Lightner's patent axle boxes to my locomotiues and tenders for the past two years. I consider them superior to all others,—economical in their use, and possessing many important advantages not found in any other boxes.

SETH WILMARTH.

—

Office 15, R. R. Exchange, Boston,
June 1, 1851.

This is to certify, that we have known the success of Lightner's patent journal boxes upon various roads in New England the past three years, and have been led to examine their peculiar construction.—We are well satisfied of their merits, and have adopted them upon our small gravel cars, and take pleasure, as we ever have done, in recommending their use upon all roads where we are employed in the construction.

GILMORE & CARPENTER,
Contractors.

—

Amoskeag Manufacturing Co. Machine Shop,
Manchester, May 31, 1851.

H. F. ALEXANDER, ESQ.

Dear Sir,—We are using the Lightner box on all the engines and tenders we build, and we are satisfied that it is the best box in use, and recommend the same to all those who purchase engines at our works.

Yours respectfully,
O. W. BAYLEY, Agt.

—

This is to certify that the Fitchburg railroad company having become satisfied of the superiority of J. Lightner's patent Axle Boxes for Railway Cars and Locomotive Tenders adopted the same,

and are bringing them into general use upon their road.

One year's experience with the above improvement, has fully convinced me that there has never been anything offered to the public for that purpose which possess such intrinsic value; in fact, this is an improvement which seems to overcome all the difficulties found in all the various kinds now in use. It possesses very many advantages over all others: Some of which are [first] the first cost is much less than that of most boxes in use. [Secondly] 75 per cent is saved in oil; one gill applied to each Journal once a month, or one quart to an eight wheel car, is all these boxes require per month [Thirdly] no dust can gain access to the Journal, which is constantly lubricated with clean oil; hence the saving in repairs ot Journals and composition bearings, is a matter of importance. [Fourthly,] its construction is truly simple—not complicated, having nothing liable to become loose by constant and severe service. [Fifthly] for convenience there is nothing which approaches this improvement.—The composition bearings may be removed from the Journals of an eight wheel car, by one man, and returned, or duplicates, in twenty minutes, while under the car: the same would require two men, at least half a day with other boxes in use.—The trucks and wheels using these boxes, are free from oil and dirt, usually seen upon all railroad cars, at great expense to the corporation.

NATH'L JACKSON.
Supt. Car Building and Repairs, F.R.R. Co.

—

Boston, March 9, 1849.

I hereby certify, that I have examined a box for Car Journals, invented by Mr. Lightner of Roxbury, Mass, and I have thought so well of it that I have adopted it on our railroad, I have known of its success on other roads.

S. M. FELTON,
Supt. F. R. R.

—

Office of the Central R. R., N. J., Elizabethtown, May 1849.

H. F. ALEXANDER, Esq.,

Dear Sir:—Your favor, [wishing to be informed how we liked Lightner's patent axle boxes for R.R. Journals,] has been duly received; in answer we would say, we have used the boxes on Locomotive tenders one year, more or less, and on our cars some six months. I consider them the best boxes in every respect, I have ever used, or even seen used on any other roads—for safety, durability and the economy pertaining to all the details connected with the boxes and Journals of R. R. Car wheels; and we shall adopt them upon this road.

Yours Respectfully,
JOHN O. STEARNS.
Supt. Central Railroad Co., N. J.

—

Manchester, N. H., Nov. 1st, 1850.

H. F. Alexander, Sir,

I have used "Lightner's Boxes" under all the Cars of the Manchester and Lawrence railroad, and feel no hesitation in saying that I think them to be the best boxes now in use.

Yours, &c.,
THEODORE ATKINSON, Agent.

—

Cheshire R. R. Office, Keene, March 5th, 1851.

Mr. H. F. Alexander,

Sir,—Lightner's Patent Boxes have been used on the Cheshire R. R. about a year, and have given the highest degree of satisfaction.

All the Passenger Cars now in use, and a considerable number of Merchandize Cars are furnished with them, and they will take the place of the Common Boxes on all the cars as fast as circumstances will permit.

Very Resp't.
L. TILTON,
Supt. Cheshire R. R.

—

Boston and Worcester Railroad, Boston, April 1st, 1851.

H. F. Alexander, Esq.,

Dear Sir,—Lightner's Patent oil saving box for railroad cars, has been adopted by this corporation; we are taking out the common and substituting the Lightner's at the rate of fifty boxes per month; it will soon take the place of all others, as it is decidedly preferable to any heretofore used by this corporation.

G. TWITCHELL, Supt.

Statement of amount of oil used on 32 8-wheel freight cars, on the Boston and Providence Railroad (with Lightner's Boxes) from March 10, 1849, to February 27, 1851, and upon 12 8-wheeled passenger cars from September 8, 1849, to February 27, 1851.

FREIGHT CARS.

Amount Oil.	No. months.	Amount Oil.	No. months.
1.—21 pts.	10	17.—23½ pts.	14
2.—19 "	6	18.—23½ "	11
3.—25 "	13	19.—36 "	21
4.—18 "	7	20.—22 "	10
5.—22 "	12	21.—38½ "	24
6.—24 "	13	22.—29 "	23
7.—20 "	11	23.—35½ "	23
8.—21 "	11	24.—37½ "	23
9.—23½ "	10	25.—51 "	23
10.—21 "	9	26.—31½ "	24
11.—20 "	9	27.—28½ "	23
12.—21½ "	11	28.—36 "	23
13.—19 "	8	29.—50½ "	24
14.—25½ "	17	30.—50 "	23
15.—20½ "	10	31.—41 "	23
16.—31 "	18	32.—39½ "	23
		Total, 925½ pts.	510

PASSENGER CARS.

1.—19½ pts.	18	7.—30 pts.	18
2.—25½ "	18	8.—25½ "	18
3.—33½ "	16	9.—29 "	18
4.—19 "	15	10.—46½ "	17
5.—15 "	15	11.— 9 "	9
6.—22 "	18	12.—65½ "	17
		Total, 340 pts.	197

Averaging 1 4-5 pints of oil for freight, and 1 7-10 for passenger cars per month only!

All orders and enquiries promptly attended to.

BRIDGES & BROTHER,
No. 64 Courtlandt st., New York.

July 25, 1851.

To Boiler Makers, Engineers, etc., etc.

PATENT LAP-WELDED IRON TUBES,
Manufactured by the
BIRMINGHAM PATENT IRON TUBE CO.
UNDER
PROSSER'S PATENT,
from one and a quarter to eight inches in diameter.

These tubes are well known for their superiority over all other descriptions for Locomotive, Marine and other Steam Engine purposes, for which they are used very extensively in Great Britain and on the Continent of Europe.

For sale in quantities to suit purchasers, by
WILLIAM BIRD & CO.,
44 Wall st., New York.

July 26, 1851.

To Railroad Companies.

THE undersigned has discovered and patented an imperishable, cheap, and sufficiently elastic substance, to be introduced between the sill and rail, so that the stone sill can be used in place of the wooden sill: entirely overcoming that rigidity where the rail is laid directly on stone. Address

J. B. GRAY, Philadelphia.

July 10, 1851. 4m

To Contractors.

Peru and Indianapolis Railroad.

PROPOSALS will be received at the office of the Peru and Indianapolis Railroad, in Noblesville, until the evening of the 13th of August next, for the Grading of the line of the above road from Noblesville to Peru, a distance of fifty miles. Also the masonry for Bridges over the Wabash, Big Pipe and White Rivers.

The proposals are to be addressed to W. J. HOLMAN, Esq., Chief Engineer, at the Company's Office, where plans and specifications of the work may be seen. Payments will be made monthly in cash, reserving 15 per cent. till the contracts are completed.

Indianapolis, July 12, 1851.

European and North American Railway.

THE undersigned, the three persons first named in the first section of an act passed by the Legislature of Maine, and approved the twentieth day of August last past, entitled "An Act to incorporate the European and North American Railway Company," and being specially authorised therefor in and by said act, hereby give public notice that, for the purpose of receiving subscriptions to the stock of said company, as established by the act aforesaid, according to the provisions thereof, not exceeding forty thousand shares, books of subscription will be opened under the direction of the undersigned, according to the regulations prescribed, at the time and places following, viz:—On WEDNESDAY, the Twentieth day of August next,

At Calais, Maine, with Noah Smith, Jr., Esq.

Eastport,	do.	"	Col. Bion Bradbury.
Machias,	do.	"	Walker & O'Brien,
Ellsworth,	do.	"	Seth Tisdale, Esq.
Oldtown,	do.	"	Geo. P. Sewall, Esq.
Bangor,	do.	"	Geo. W. Pickering, Esq.
Orono,	do.	"	Hon. Israel Washburn, Jr.
Waterville,	do.	"	Hon. Timothy Boutelle.
Brunswick,	do.	"	Prof. William Smyth.
Augusta,	do.	"	B. A. G. Fuller, Esq.
Belfast,	do.	"	John Y. McClintock, Esq.
Portland,	do.	"	John B. Brown, Esq.
Portsmouth,	N.H.		Hon. I. Goodwin.
Salem,	Mass.		Stephen A. Chase, Esq.
Boston,	do.	"	Francis Skinner & Co.
Lowell,	do.	"	John Wright, Esq.
Worcester,	do.	"	Charles Washburn, Esq.
Providence,	R.I.,	"	Billings Brastow, Esq.
Hartford,	Conn.,	"	Hon. C. F. Pond.
New Haven,	do.	"	Allen Prescott, Esq.
New York,	N.Y.,	"	R. & G. L. Schuyler, No. 2 Hanover street.
Albany,	do.	"	John V. L. Pruyn, Esq.
Troy,	do.	"	Hon. John D. Willard.
Philadelphia,	Pa.	"	Hon. Wm. C. Patterson.
Montreal,	Canada,		Hon. John Young.
Quebec,	do.	"	J. B. Forsyth, Esq.

Said books will remain open for ten successive days at the places and with the persons aforesaid.

Dated at Portland, this sixteenth day of June, A. D. 1851.

ELIJAH L HAMLIN,
ANSON G. CHANDLER,
JOHN A. POOR.

Trautwine on R. R. Curves.

By JOHN C. TRAUTWINE, Civil Engineer,
Philadelphia, Pa.

IN press, and will be published in a few days; accompanied by a Table of Natural Sines and Tangents to single minutes, by means of which all the necessary calculations may be performed in the field.

This little volume is intended as a field-book for assistants; and will be found extremely useful, as it contains full instructions, (with wood cuts) for laying out, and adjusting curves; with Tables of Angles, Ordinates, etc., for Curves varying from 13 miles, down to 146 feet Radius.

A portable Table of Natural Sines and Tangents to minutes, has for a long time been a desideratum among Engineers, independently of its use in laying out curves.

The volume is neatly got up in duodecimo; and handsomely bound in pocket-book form.

Sold by Wm. Hamilton, Actuary of the Franklin Institute, Philadelphia. Price $1.

Also in press, and will be issued in a few weeks, "*Trautwine's Method of Calculating Excavation and Embankment.*"

By this method, which is entirely new, (being now made known for the first time) the cubic contents are ascertained with great ease, and rapidity, by means of diagrams, and tables of level cuttings. Thin octavo; neatly half bound, $1. For sale by Wm. Hamilton.

June 28, 1851.

Railroad Iron.

CONTRACTS made by the subscribers, agents for the manufacturers, for the delivery of Railway Iron, at any port in the United States, at fixed prices and of quality tried and approved for many years, on the oldest railways in this country.

RAYMOND & FULLERTON, 45 Cliff st.

Notice to Contractors.

Steubenville and Indiana Railroad.

PROPOSALS will be received at the Office of the Steubenville and Indiana railroad company in Steubenville, until the first day of October next, for the Grading and Masonry of the first division of the road extending from Steubenville to the Connotten valley and also for the construction of the entire road between Steubenville and Coshocton; and also distinct proposals for the construction of that portion of the road extending from Coshocton to Newark.

The entire length of this line is about 110 miles, and it contains work of all descriptions, in great variety, some of which is quite heavy.

Proposals will be received for the Grading and Masonry of the first division entire or in sections of about a mile each, the Company reserving the privilege to make such disposition of the whole work, as may appear most conducive to its interests.

Plans, profiles and specifications can be seen at the office of the Company after the 15th of September, and further information may be obtained on application to J. Blickensderfer, jr., Chief Engineer, or to the undersigned,

D. KILGORE, President.

Notice to Contractors.

Engineers Office, E. T. & V. R. R. Company, Greenville, E. T., June 5th, 1851.

PROPOSALS will be received until the 1st day of October next, for the Grading and Masonry of that part of the E. T. & V. Railroad between the Eastern terminus of said road at King's Meadow, and Rheatown, in Greene County, a distance of about forty-seven miles. A large amount of very heavy work, both in Grading as well as Masonry, will be found on this division, offering strong inducements to able Contractors.

Maps, Profiles, and Specifications can be seen at this Office, on and after the 20th of July next.

The Company reserve the right to reject all, or any proposals that they deem unsatisfactory.

Proposals should be directed to the Treasurer and Secretary of the E. T. & V. Railroad Company, Jonesborough, E. T.

LLOYD TILGHMAN,
Chief Engineer.

Railroad Lanterns.

COPPER and Iron Lanterns for Railroad Engines, fitted with heavy silver plated Parabolic Reflectors of the most approved construction, and Solar Argand Lamps; manufactured by

HENRY N. HOOPER & CO.,
No. 24 Commercial St. Boston.

August, 16, 1849. 6m33

Railroad Iron.

THE Subscribers, Agents for the Manufacturers, are prepared to contract for the delivery of Railroad iron at any port in the United States or Canada, or at a shipping port in Wales.

WAINWRIGHT & TAPPAN,
29 Central Wharf.

Boston, June 1, 1851.

Bowling Tire Bars.

40	Best Flange Bars	5½x2	"	7 feet 8 in. long.
40	"	5½x2	"	7 feet 8 in. long.
40	" Flat "	6x2	"	11 feet long.
40	"	6x2	"	7 feet 8 in. long.

Now in store and for sale by

RAYMOND & FULLERTON,
45 Cliff street.

To Railroad Companies, Machinists, Car Manufacturers, etc., etc.

CHARLES T. GILBERT,

NO. 80 BROAD ST., NEW YORK,

IS prepared to contract for furnishing at manufacturer's prices—

Railroad iron,
Locomotive Engines,
Passenger and Freight Cars,
Car Wheels and Axles,
Chairs and Spikes.

Orders are invited; and all inquiries in relation to any of the above articles will receive immediate attention

THE Fourth Annual Exhibition of AMERICAN MANUFACTURES, by the MARYLAND INSTITUTE *for the Promotion of the Mechanic Arts*, will be opened in Baltimore on the 20th October, 1851.

The Exhibition will be held in the SPLENDID NEW HALL of the Institute, (fronting on Baltimore street) now being rapidly completed. Their edifice is centrally situated, chaste in its architecture, solid in its construction, and is *by far the largest and most complete building in the United States, devoted to the Mechanic Arts.* It may be added that this building is 355 feet long by 60 in breath, with an average height of 68 feet, containing some twelve apartments, the largest of which is 255 feet by 60, and that the cost will be over $70,000.

To this Exhibition, the Managers ask the attention of all engaged in industrial pursuits throughout the country, and cordially invite them to contribute specimens of their best productions for public inspection, and to compete for the prizes offered by the Institute. These prizes consist of GOLD and SILVER MEDALS, DIPLOMAS, etc., which were last year distributed as follows:—*Gold Medals*, 16; *Silver ditto*, 90; *Diplomas*, 60; besides 85 articles of Jewelry, etc., to ladies. *Fair play will be scrupulously observed towards all*, and every facility of Steam power, shafting, fixture, labor, &c., &c., will be amply provided *free of expense.* The machinery will be under a special superintendent, and a fine display of it is looked for. The last exhibition of the Institute was visited by more than 40,000 persons, and with their vastly improved accommodations and alterations, this number will be doubled at the coming display, embracing many Virginians, Pennsylvanians, and other strangers from the South and West.

Joshua Vansant, President.
Ed. Needles, F. A. Fisher, } Vice Presidents.
Samuel Sands, Rec. Sec'y.
Wm. Prescott Smith, Cor. Sec.
F. J. Clare, Treasurer.

BOARD OF MANAGERS.

Ross Winans,	Simeon Alden,
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Wm. H. Keighler,	*John F. Mereditt*,
Richard Edwards, Jr,	*W. Abrahams*,
Wm. Bayley,	*Thos. Trimble*,
R. Eareskson,	*Chas. Suter.*

(☞ The last nine *in Italics* are the Committee on Exhibition.)

The Hall will be opened for the reception of goods on MONDAY, *13th October*; on the next Monday, 20th, at 7 P. M., the Exhibition will be formally opened to the public, and will *positively* close on Wednesday, 19th November. Articles *for competition* must be in the Hall by *Thursday* night, Oct. 16, *unless delayed in shipment after starting in ample time.*

Those who intend depositing, will give the Committee or the Agent, notice as early as possible, stating *the nature of the goods, and probable amount of room required*, to exhibit them to advantage

☞ Circulars, containing a view of the new Hall and the full regulations of the Committee, with special information, if required, may be had promptly, by addressing the undersigned, or the Institute's Agent, J. S. Selby, Baltimore, *post-paid.*

ADAM DENMEAD,
Chairman Com. on Exhibition for 1851.

SUPERIOR BLACK WRITING & COPYING

INK.

Jones' Empire Ink.

87 Nassau st., Sun Building, New York city.

Net prices to the trade—

Quarts, per dozen,	$1 50	6 oz. per dozen,	$0 50
Pints, "	1 00	4 " "	0 37½
8 ounces, "	0 62½	2 " "	0 25

On draught per Gallon, 20 cents.

This is the best Ink manufactured. It flows freely, is a good copying ink, and will not mould, corrode, precipitate or decay. Orders for export, or home consumption, carefully and promptly attended to by

21tf THEODORE LENT.

To Railroad Companies, etc.

The undersigned has at last succeeded in constructing and securing by letters patent, a Spring Pad-lock which is secure, and cannot be knocked open with a stick, like other spring locks, and therefore particularly useful for locking Cars, and Switches, etc.

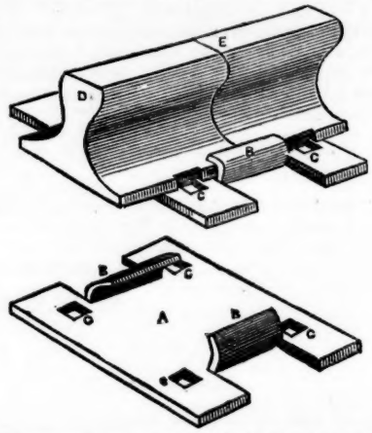
I also invite attention to an improved PATENT SPRING LOCK, for SLIDING Doors to Freight and Baggage Cars, now in use upon the Pennsylvania Central, Greensville and Columbia, S.C., Reading, Pa., and other Railroads.

Companies that are in want of a good Pad-lock, can have open samples sent them that they may examine and judge for themselves, by sending their address to

C. LIEBRICH,
46 South 8th St. Philadelphia.

May 9, 1851.

The American Railroad Chair Manufacturing Co.



ARE prepared to make WROUGHT IRON RAIL ROAD CHAIRS, of various sizes, at short notice.

By use of the WROUGHT IRON CHAIR, the necessity of the wedge is entirely done away—the lips of the chair being set, by means of a sledge or hammer, close and firmly to the flange of the rail.

The less thickness of metal necessary in the Wrought Iron Chair gives much greater power and force to the spikes when driven—and consequently a much less liability to the spreading of the rails by reason of the spikes drawing or becoming bent.

The less weight necessary in the Wrought Iron Chair, will enable us to furnish them at a cost much below that of CAST IRON CHAIRS.

DESCRIPTION OF THE ABOVE CUTS.

Figure 1 is a perspective view of the rail secured in the chair, and fig. 2 is a perspective view of the chair itself. D, E, are sections of two rails placed together, and secured at the joint on the chair by the jaws B, B. The chair is bolted down by spikes C, C. In fig. 2, the chair is represented as made of a single block or plate A of wrought iron.

The chair is set in its proper place on the track, spiked down, and the ends of the two rails brought together within the jaws as represented in fig. 1.

For further information address,

N. C. TROWBRIDGE, Secretary,
Poughkeepsie, N. Y.

June 1, 1851.

Railroad Commission Agency.

THE Subscriber offers his services to Railroad Co's and Car Makers for the purchase of equipment and furniture of roads and depots and all articles and materials required in the construction of cars, with cash or approved credit. No effort will be spared to select the best articles at the lowest market price.

He is sole Agent for the manufacture of the ENAMELED CAR LININGS, now in universal use. The best Artists are employed in designing new styles, and he will make to order pieces with appropriate designs for every part of the car, in all colors, or with silver grounds and bronzed or velvet figures.

He is also Agent for Page's Car Window Sash Fasteners, which is preferred by all who have used it to any other.

CHARLES STODDER,
75 Kilby st., Boston.

June 20, 1851. 3m.